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\*Illustrated.

After the approval of the stockholders and public service commissions concerned has been obtained, stockholders of the New York Central Railroad Company, the new consolidated company, are to be offered the privilege of subscribing for an issue of \$100,000,000 6 per cent 20-year debenture bonds at par. The bonds are convertible into stock after 1917 and up to May 1, 1925, at 105. J. P. Morgan & Co. are to form a syndicate to underwrite the issue. The arrangements for the sale of these bonds marks the end for the New York Central and the Lake Shore of a long period of financing by short term notes. The New York Central has \$20,000,000 notes falling due in 1915, and at the end of 1913 \$44,868,000 loans and bills payable, and the Lake

Shore at the end of 1913 had \$23,768,000 one-year notes falling due in 1914, which have been temporarily extended. The proceeds of the debenture bonds sale will, therefore, just about pay off all of the maturing short term notes. By selling 6 per cent debentures to its stockholders at par the New York Central, in effect, gives its stockholders rights, which apparently are worth from \$3 to \$6 a share; by issuing debentures for refunding purposes instead of mortgage bonds secured by the new improvement and refunding mortgage it would appear to strengthen the position of the bonds which have already been issued under this mortgage, and by making the debentures convertible into stock it indirectly increases the total amount of bonds which can be issued under the improvement and refunding mortgage by \$300,000,000, the limitation in the improvement and refunding mortgage as to the amount of bonds which can be issued under it being contingent on the amount of stock issued. The high rate of interest on the debentures is probably thought by the directors to be fully justified by the gain which is made in strengthening the improvement and refunding mortgage bonds which may later be issued either for refunding underlying obligations or for additions and improvements.

The Terminal Railroad Association of St. Louis is again seeking authority to enlarge its terminal facilities in that city. Seven years ago it acquired a tract of 26 acres in the heart of the railway district to supply greatly needed storage tracks, but the city authorities refused to let it cross some streets and alleys which really had never been opened, and it has been denied the use of its property to the present time. In consequence, it has become crowded so badly in the yards adjacent to the Union Station that local freight facilities have had to be taken over for the storage of passenger equipment. St. Louis has a new city charter, which confers upon its local public service board the exclusive right to permit railroad tracks to cross or occupy public streets and alleys. A month ago the Terminal Association asked permission of this board to cross some unused streets to make use of part of its tract in order to prevent a serious congestion in its main yards which was threatened. The board promptly filed its application, and then apparently forgot about it. Now the shippers are taking a hand in the matter and are demanding some action without further delay. The Business Men's League and the various railroads serving St. Louis all maintain industrial organizations that work to bring new factories to the city; and to make any headway in this sort of endeavor it is essential that the prospective newcomers be guaranteed switch tracks to their factories. One of the arguments in favor of the new charter was that the transfer of the switch-giving power from the aldermen to the public service board would insure quicker action and thereby aid in the campaign to get more industries for St. Louis. One of the first applications under the new code was that of the Terminal. The shippers who have come to its support are the biggest in St. Louis, and some interesting sessions between their committee and the service board are expected. If the board is going to sidetrack switch applications in this way the city will hardly be able to compete for new industries with other cities where switch tracks are allowed to be built almost as a matter of course.

## Blocking Development at St. Louis

For the first time since 1901 steel rails are now being quoted openly at less than \$28 per ton. This basic price was established for Bessemer rails at the time of the formation of the United States Steel Corporation and has been maintained by the corporation and independent mills alike since that date. Very recently the Algoma Steel Company, a Canadian corporation, has entered the market in this country, quoting open hearth rails at \$25 per ton on board cars at the mills, or \$27.60 on board cars at Chicago, as compared with \$30 at the mills quoted by the manu-

## The Price of Rails

facturers in the United States. This creates a very interesting situation in the steel market, and at least three roads, the Pere Marquette, the Big Four and the Toledo & Ohio Central, have given this company rail orders at these prices. The reasons why the Algoma Steel Company is able to quote this price on rails are evident. The European war has created a business depression in Canada much more acute than in the United States, with the result that the rail requirements of the Canadian railways are materially reduced. The steel company is therefore seeking new business at a reduced price to prevent the closing down of the mill. The fact that there is no tariff on ore moving from the United States into Canada, and the recent removal of the tariff on steel products into the United States now enables that company to direct its attention effectively to this country. Situated as it is on Lake Superior, it is in a position to deliver rails by water at any of the lake ports, and it may therefore become a serious competitor of the mills in this country. While as a business matter it may be expedient to reduce the price on the rails delivered in this country to maintain the output, it will be interesting to note whether the Canadian roads do not demand a similar reduction. It will also be interesting to observe the attitude that the steel companies in this country will assume toward this new competition and the extent to which the roads in this country will avail themselves of this reduction in price, and the effect, if any, on prices in this country.

#### THE LAW, AND THE RAILWAYS AND THEIR PATRONS

WE referred in a recent issue (*Railway Age Gazette*, January 22, page 117) to statistics showing that in 1913 the Interstate Commerce Commission secured more indictments and caused more prosecutions of patrons of the railways than of the railways themselves for violating the Interstate Commerce law and the Elkins act. The complete figures for 1914 show that the same thing was true in that year. The number of indictments of railways secured in 1914 was 21, while the number secured against other persons and concerns was 37. The number of prosecutions under these laws carried to success in 1914 against railways was 23, while the number against other persons and concerns carried to success was 45.

Combining the figures for 1913 and 1914 we get the following results:

Total number of indictments, 119.

Number against railroads, 48, or 41 per cent.

Number against other persons and concerns, 71, or 59 per cent.

Total number of successful prosecutions, 119.

Number of successful prosecutions of railways, 42, or 35 per cent.

Number of successful prosecutions of other persons and concerns, 77, or 65 per cent.

The laws under which these indictments were secured and these prosecutions were conducted were passed primarily to regulate railways. If these figures have any significance it is that the railways are now obeying the laws much better than the people who travel and ship goods over their lines. The *Railway Age Gazette* repeatedly has contended that the standard of morality in the railway business is higher than in other lines of commercial and industrial enterprise in the United States, and the statistics cited support this contention.

The offenses committed by the patrons of the railways are of various kinds, and include misdescription of contents of packages; false billing; making fraudulent claims against carriers; soliciting unlawful discriminations; making unlawful use of free passes; using false weights; conspiring to violate the Hepburn act in connection with the transportation of theatrical goods; obtaining unlawful concessions on shipments; inducing agents of the railways to discriminate by issuing bills of lading prior to the receipt of shipments; accepting rebates outright; soliciting and receiving information concerning shipments consigned to other parties, and so on. The variety of the offenses commit-

ted is great, and it will be noted that in a majority of cases they not only violate the law but rob the railway.

Regulation of railways, especially that which has been done by the Interstate Commerce Commission, has tended powerfully to raise and maintain the standard of morals in the railway business. This effect was expected. The influence which it is exerting in raising the standard of morals in other lines of business by compelling concerns in other lines of business to quit trying to defraud the railways is unexpected, but is none the less beneficial on that account.

It is hard to resist the temptation to suggest, in conclusion, that as the evidence shows, men in many lines of business who have devoted a large part of their energies to denouncing the evils in railway management might have been more usefully employed in denouncing the evils in their own lines of business, and perhaps in even correcting forms of crookedness prevailing in their own concerns. As long as 65 per cent of the successful prosecutions under the Interstate Commerce act and the Elkins act are directed against shippers and other patrons of the railways we shall hope to hear less than in the past from representatives of business concerns regarding the failure of the railways to clean their houses.

#### BUSINESS INTERESTS AND THE GOVERNMENT

AT the recent annual dinner of the Chicago Railway Equipment Company, which was attended by a number of prominent business men, a resolution was adopted on the motion of E. B. Leigh, president of this company, expressing it as the sense of those present that the Chamber of Commerce of the United States should appoint a committee to devise ways and means for mobilizing the entire business forces of the country to the end that business may speak and act as an intelligent and forceful unit on the many public questions which so vitally affect it.

This resolution expresses one of the great needs of the present day in the United States. For ten years the business interests of the country have been constantly under fire. The fire has come from the professors of economics in the universities, from advocates of socialism, from leaders of organized labor, and from public men. It has also come from business men themselves, some classes of them attacking others. It has consisted not only of agitation and denunciation, but of an enormous amount of municipal, state and nation legislation. At first the attacks affected only insurance companies, railway companies and large combinations. They now directly or indirectly affect all business men and business concerns, big and little.

Practically every provision, state and national, which has been enacted during this period for the regulation of business has been a piece of class legislation. The general purpose has been to promote a different, and what it has conceived would be a more equitable, distribution of wealth. None of the legislation passed has been intended or adapted to increase efficiency in production. But it is very difficult to frame legislation so that it will affect the distribution of wealth without so framing it that it will affect the production. And the legislation intended to influence distribution has influenced production. Whatever other effects it has had on distribution, one effect it clearly has had. It has reduced production and thereby curtailed the amount available for distribution. Whether distribution is or is not more equitable than ten years ago, the absolute amount being distributed to all classes—to the working class, the middle class and the more wealthy class—has been substantially reduced.

Organized labor has had a potent part in shaping the legislation for the regulation of business. The American Federation of Labor, the various state federations of labor, the railway brotherhoods, with their large voting strength, through their legislative agents at the state capitals and at Washington, have largely determined the tone and the specific



provisions of many of the laws which have been passed. On the other hand, as a class, business men have exerted but little influence on legislation. As classes, rather than as a single class, they have influenced it. The shippers have got a large part of the legislation which has been applied to railways. The direct effect has been to curtail the earnings and hamper the development of the railroads, and its indirect effect has been to stimulate a tendency to apply to industrial and commercial concerns the same kind of regulation which has been applied to railways. The bankers exerted an influence on the federal reserve legislation, but they received little support from other classes of business men. And so it has been all along the line. While labor has acted unitedly the business men have split up into a dozen camps and spent more time trying to get legislation that would profit one part of them at the expense of another than in trying to prevent legislation which would hurt all of them.

The shrewdness and skill which organized labor has shown in carrying on its campaign for regulation which it has conceived would benefit it has been equaled only by the shortsighted selfishness and stupidity which the business interests have shown in dealing with questions vitally affecting them. Where is the business organization which corresponds to the American Federation of Labor? Where is the business organization in any state which corresponds to the various state federations of labor? Where are the legislative representatives of business at Washington and at the various state capitals who correspond to the legislative representatives that labor has in those places? When a state legislature or Congress meets there usually are lobbies on hand representing business interests, but they are usually not there lobbying to protect the interests of business as a whole, but to enable some classes of business interests to get advantages, fair or unfair, over other classes of business interests.

The consequence is that organized labor, representing, it is understood, about seven per cent. of the people, is dictating legislation and regulation in every state and in the nation, while the business interests, instead of securing fair treatment from the government and its co-operation and support in developing commerce and industry, are securing almost no legislation favorable to them and are being constantly victimized by legislation which injures them and the entire nation.

When are business men going to awaken to their true interests? When are they going to recognize the fact that every time one class of business interests gets legislation for the regulation of some other class of business interests it establishes a precedent for the application of some form of government interference to its own business? When are they going to recognize the fact that by splitting into factions, as they do now, they play into the hands of the leaders of organized labor, and the agitators for state socialism.

We have a Chamber of Commerce of the United States, and it ought to be loyally supported by the business interests of the country and so organized and constituted that it may become a potent representative and spokesman of business interests as a whole at Washington. But ought there not to be a similar organization of business interests in every state, an organization including all classes, which would regularly be represented at the legislatures by spokesmen competent to fight effectively for good legislation and to fight effectively against bad legislation? Business men are constantly crying out about the way the national government is dealing with business. But the state governments are, in many cases, doing business far more harm than the national government. In the case of railroad regulation the work of the Interstate Commerce Commission and of Congress, about which so many business men complain, is perfection compared with the work of many state legislatures and state commissions. Ought there not to be not only a Chamber of Commerce of the United States, but also a chamber of com-

merce of New York state, a chamber of commerce of Pennsylvania, a chamber of commerce of Illinois and a chamber of commerce of every other state through which the manufacturing, the railway, the commercial, the mercantile, the agricultural and all other business interests might act and speak as a unit at their respective state capitals? Business needs to sit at the feet of organized labor and learn from it.

#### THE CAMPAIGN FOR ADVANCES IN PASSENGER RATES

**E**IGHT years ago an agitation for the reduction of the railway maximum passenger fare from three cents to two cent a mile swept over the United States. How it was started would be difficult to say. It was merely a part of the general movement for a reduction of railway rates. The railways resisted it, but unsuccessfully. Two-cent fare laws were passed in most of the states and the relationship between state and interstate rates compelled the reduction of interstate rates to the same basis.

It was inevitable that sooner or later there should be vigorous efforts made by the railways to get advances in the rates fixed at that time. There was no evidence that a maximum fare of two cents a mile was reasonable. The Wisconsin Railroad Commission, which made the most thorough investigation of the subject, held that even on the Chicago, Milwaukee & St. Paul and the Chicago & North Western, which had the densest traffic in the state, a rate of less than 2½ cents would be unreasonably low. Nevertheless, the railways let the two-cent fare laws go into effect in many states in order to avoid the heavy penalties prescribed for their violation, and to satisfy the public demand that they should be given a trial.

Even the advocates of the two-cent fares practically conceded that on the basis of the traffic existing at that time they would be unremunerative, but they argued that the reduction in fares would so greatly stimulate the growth of the traffic that the railways would make more money on the lower fares than they had on the higher. Experience has conclusively answered this argument. The growth of passenger traffic has been lower since the two-cent fare laws were passed than it was before. The Illinois lines have shown that in that state in the four years prior to July 1, 1907, on which date the two-cent fare law went into effect, the number of passengers carried one mile increased 22.31 per cent, while in the four years ending June 30, 1913, the increase was only 17.43 per cent. The reduction in fares did not retard the growth of traffic, but it did not increase it. Whether a reduction in rates will cause an increase in traffic depends entirely on the nature of the traffic to which, and the conditions under which, the rates apply.

Not only was the two-cent fare unreasonable when the legislation prescribing it was passed, but it has steadily become more unreasonable ever since. There have been enormous increases in railway expenses and taxes since the years 1906 to 1908, in which the most of this legislation was passed. It has been possible largely to offset, in the freight service, this increase in expenses by the introduction of economies, but passenger traffic does not lend itself to this kind of treatment to the same degree as freight traffic. The greatest economies in the handling of freight are effected by increasing the tons hauled per car per train. Proportionate increase in the number of passengers hauled per car and per train cannot be made for perfectly obvious reasons. Therefore the increase in the ratio of passenger service expenses to passenger earnings has been much greater than the increase in the ratio of freight service expenses to freight earnings. Louis D. Brandeis, special counsel for the Interstate Commerce Commission, brought this point out very clearly in his argument in the original five per cent rate case. For example, as he showed, between the fiscal year 1911 and the fiscal year 1913, the ratio of freight expenses to freight earnings on the Baltimore & Ohio was actually reduced from 68.16 per cent to 66.44 per cent, while the ratio of passenger expenses to passenger earnings increased from 82.39 per cent to 106.23

per cent. The experience of the Baltimore & Ohio was similar to that of almost every other road in eastern territory, and convinced not only Mr. Brandeis, but the Interstate Commerce Commission that even on the eastern roads, with their relatively dense passenger traffic, the two-cent fare was entirely unremunerative. If it is unremunerative in the eastern states, it must be very much more unremunerative in other states, such as Ohio, Indiana and Illinois, and especially Iowa, Missouri, Kansas, Nebraska, Arkansas and Oklahoma.

The evidence as to the unremunerativeness of the two-cent fare is ample to convince any reasonable man. It is sometimes pointed out that the average passenger fare in other countries is lower than in the United States. But in the first place the passenger fare in the United States is lower than in any other country in the world for similar service, the low average fares in such countries as Germany and France resulting from the charging of low rates for third- and fourth-class services so poor that no class of people in America would use them. In the second place, in the countries where these low average passenger fares obtain the wages paid to railway labor are only one-half as high as the wages paid in the United States. Finally, the passenger traffic on the railways of the leading countries of Europe are from three to five and one-half times as dense as it is on the railways of this country. Therefore, to compare the average passenger rates of Germany and France, for example, with the average passenger rate in this country is to compare things that are not comparable.

The difficulty is not in producing evidence that the two-cent fare is unreasonably low, but in getting it before those who will finally determine what the maximum fare should be. Public opinion demanded the two-cent fare legislation of seven to ten years ago. Public opinion will also determine whether one-half of what was then taken away from the railways shall now be given back to them. Therefore, through public addresses, pamphlets, newspaper articles and advertisements, the railways of Illinois and other states are taking their case for higher passenger rates directly to the public. In Illinois, for example, a committee of presidents first got a hearing with the governor, and now officers of the roads are conducting a state wide campaign of public education. Later, they will go before the legislature.

By following this procedure the railway managements are showing great good sense. Regulation has been unfair to the railways in the past because the public has been misinformed, and, being misinformed, has been prejudiced. The public will give the railways a square deal if they will give it a chance. That it has not given them a square deal in the past has been largely due to the fact that the railways have not made enough efforts to get the facts regarding their business before it.

#### THE WAR AND RAILWAY NATIONALIZATION

THE Railway Gazette of London observes that many of those who favor the nationalization of British railways are so eager that any argument is seized upon to support their case, and that they have taken the success of the government control of the British railways during the war, for the purpose of securing closer co-operation of the railways and the military authorities, as a proof of the success which would attend actual government ownership and operation. But, as our English contemporary shows, any such argument ignores the most vital facts in the case. The government, while practically managing the railways to the extent that they are used for military purposes and that all other considerations are made subordinate to the military requirements, is exercising that control through a committee of twelve of the general managers of the railways themselves, appointed long before the war, who work in conjunction with the War Office and the Admiralty. Moreover, the efficiency with which this committee has done its work, and the fact that it is practically the only department con-

cerned with the military preparations which has done its part almost entirely without criticism, is pointed to as the best possible proof of the superiority of private over government management. The work of the War Office, the Home Office, the Foreign Office and the Admiralty has received a large amount of public criticism, whereas the railways, which in ordinary times are constantly condemned, have received nothing but praise since the war began.

One of the reasons given as to why government operation of the roads would be less successful than private management is that the government would not pay sufficiently large salaries to retain the services of the kind of men that now comprise the committee. Instead of the operation of the railways during the war serving as an argument for British railway nationalization it is quite likely that the war will give a quietus to the discussion of the question for many years, because the British government for some time after the war is over will have its hands full of work which is more properly the function of a government than railway operation, and will hardly be in a position to add to the financial obligations caused by the war, the burden of investment in the railway system.

#### WABASH

THE details of the reorganization of the Wabash when the property is taken out of the receivership will be the result, as in all railroad reorganizations of a compromise between the various conflicting interests of the security holders and creditors of the company. The basis for any reorganization, however, must be the earning power of the plant, and the results of operation of the Wabash in the fiscal year ended June 30, 1914, while not utterly hopeless, appear to show something vitally wrong either with the rates received or with the cost of operation.

The Wabash operates 2,515 miles of road, of which 507 miles has second track, and of the total mileage operated 2,035 miles is owned, the remainder being almost entirely joint trackage rights. After the payment of expenses and maintenance and of hire of equipment and joint facility rents, the receivers had a balance of \$2,609,000. This is at the rate of about \$1,280 per mile of road owned and at 5 per cent would pay the interest on a capitalization of approximately \$25,600 per mile of road. The old Wabash company had a funded debt alone of over \$53,600 per mile of road, and there are outstanding in addition to the bonds of the old company \$15,000,000 receiver's certificates, not to mention the \$92,400,000 of Wabash stock. A reorganization which would scale down mortgage indebtedness from \$124,000,000 to \$50,000,000 is inconceivable and would be, of course, wholly unjust. The Wabash by no stretch of imagination could be valued as low as at \$25,000 a mile. Either, therefore, rates are so low as to result in confiscation, or there is something the matter with the plant itself or the way in which it is operated which makes its operating cost entirely too high, or there is a combination of these two things.

There is no road so situated as to be wholly fairly comparable to the Wabash. The Cleveland, Cincinnati, Chicago & St. Louis has some points, both from a traffic situation and physical location, in common with the Wabash, as has also the Chicago & Alton and the Chicago Great Western. Since these four roads compete one with another on various classes of traffic and therefore must charge the same rates on the competitive traffic, if the other three roads were blooming with prosperity, to paraphrase Mr. Brandeis' diagnosis of general business conditions, it would be pretty good evidence that the trouble was not with the rates received by the Wabash, but with its cost of operation. But no one of the other three roads is in a state even of moderately healthy prosperity. The Big Four had a deficit, after the payment of fixed charges, in the calendar year 1913 of \$2,698,000; the



Alton, a deficit in the fiscal year ended June 30, 1914, of \$2,762,000, and the Great Western—for all it only recently went through receivership and was reorganized—had a surplus of only \$896,000 after interest charges. While this is not, of course, conclusive evidence that rates obtained by the Wabash are too low, it is certainly strongly corroborative of this assumption.

The Wabash got an average rate per ton per mile before the Interstate Commerce Commission 5 per cent rate advance order was made of 6.081 mills; the Big Four, 5.47 mills; the Alton, 6.06 mills, and the Great Western, 7.29 mills. The Wabash received 1.888 cents per passenger per mile; the Big Four, 1.893 cents; the Alton, 1.889 cents, and the Great Western, 2.001 cents. If the character of traffic was such as to permit of very low cost of handling, and the nature of the grades, other facilities and of weather conditions were also such as to facilitate very low operating costs, a 2,000 mile railroad might operate profitably with a six mills per ton mile rate for freight and a two-cent per mile rate for passengers. The less than two-cent per mile rate on the Wabash is undoubtedly unremunerative and lower than American railroad conditions anywhere warrant.

Nature of traffic and characteristics of plant on the Wabash do not permit of very low operating costs per unit of freight and passengers handled. Of the total tonnage of freight, which in 1914 amounted to 14,261,000 tons, 35.65 per cent was furnished by products of mines, 22.24 per cent by manufactures, 18.25 per cent by products of agriculture, 7.40 per cent by products of forests and 6.72 per cent by products of animals. With only 36 per cent of its total tonnage coal and ore, and with 22 per cent of its tonnage manufactures, and, furthermore, with just a third of the tonnage of manufactures l. c. l. freight, an average ton-mile rate of a little over six mills makes a return on anything like a fair valuation of the Wabash an impossibility.

Even with a rate adjustment, however, something will probably have to be done to lower the unit cost of operation of the property to insure future solvency, even if a drastic reorganization is carried through.

The following table shows the percentage of each class of expenses to total operating expenses:

	1914	1913
Maintenance of way and structures.....	16.51	17.54
Maintenance of equipment .....	23.11	21.59
Traffic expenses .....	4.23	4.15
Transportation expenses .....	52.72	53.51
General expenses .....	3.43	3.21

Transportation expenses are obviously out of line with maintenance expenses, and while maintenance expenses are apparently fairly ample, they are by no means large, with the exception of maintenance of equipment. Maintenance of way in 1914 cost \$1,611 per mile of road, and in 1913, \$1,722.

Repairs of equipment per unit of equipment were as follows:

	1914	1913
Locomotives .....	\$3,589	\$3,520
Passenger cars .....	910	926
Freight cars .....	72	72

Another serious problem with the Wabash is the very high debit balance which it has to pay for hire of equipment—\$1,114,000 in 1914 and \$1,083,000 in 1913. In addition the company had to pay \$1,576,000 for joint facility rents in 1914 and \$1,522,000 in 1913.

The Wabash has a particularly hard problem in regard to its debit balance for equipment. In 1914 there were on an average 14,714 foreign freight cars on the Wabash per day. This compares with 18,593 in 1913 and compares with a total number of freight cars owned by the Wabash of 23,114.

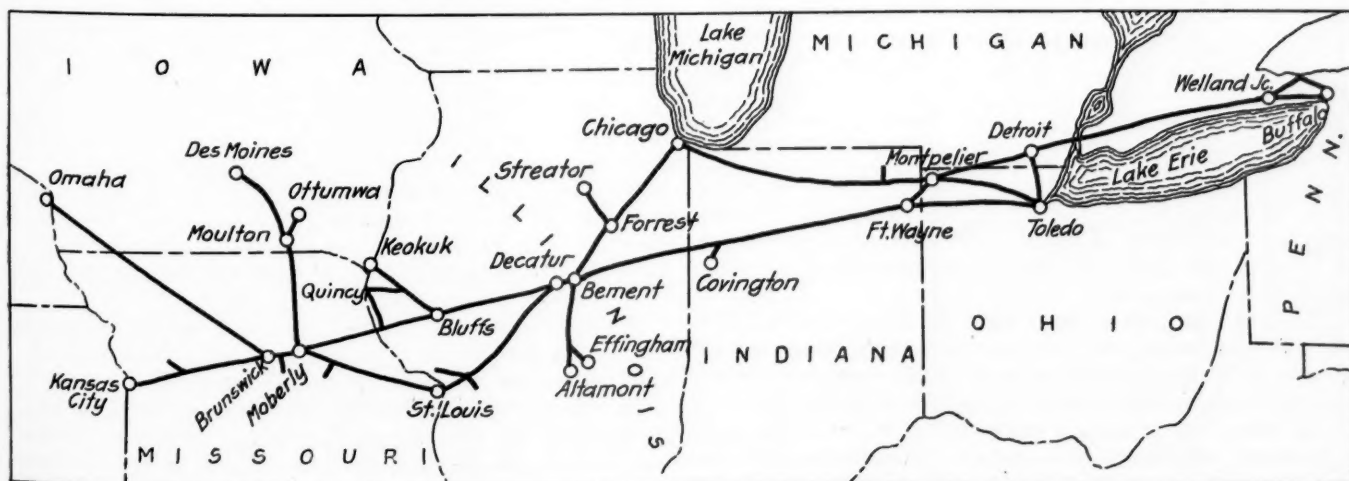
The average revenue trainload on the Wabash in 1914 was 394 tons, and in 1913, 395 tons. There is quite a heavy tonnage of company freight, so that the total tonnage per train mile was 429 tons in 1914 and 435 tons in 1913. The freight density on the Wabash was 1,041,000 tons one mile per mile of road. This is a fairly heavy density for a road with the comparatively small proportion of second track which the Wabash has and with a comparatively high percentage of manufactures and merchandise.

The Big Four has 426 miles of second track as against the Wabash's 507 miles of second track, with about the same mileage of first track operated, and the Big Four has a freight density of 2,178,000 tons one mile per mile of road; but of the Big Four's total tonnage approximately 50 per cent is products of mines, as against 35 per cent for the Wabash. The Big Four's average total trainload in 1913 was 515 tons. The Wabash averaged 21 loaded cars per train and 11 empty cars; the Big Four, 24 loaded cars and 10 empty cars. This matter of empty car mileage is one largely beyond the control of the operating department.

The following table shows the principal figures for operation on the Wabash in 1914 as compared with 1913:

	1914	1913
Average mileage operated.....	2,515	2,515
Freight revenue .....	\$20,212,828	\$21,777,896
Passenger revenue .....	7,202,169	7,269,914
Total operating revenues .....	30,035,750	31,685,584
Maint. of way and structures.....	4,021,782	4,298,862
Maint. of equipment .....	5,637,985	5,317,665
Traffic expenses .....	1,028,463	1,002,685
Transportation expenses .....	12,799,619	13,079,378
General expenses .....	834,846	780,767
Total operating expenses .....	24,322,695	24,479,357
Taxes .....	1,044,309	907,457
Operating income .....	4,612,966	6,244,087
Gross income .....	5,383,236	7,005,371
Rentals and hire of equipment.....	2,774,261	2,688,536
Interest accrued* .....	4,002,136	3,888,532
Deficit .....	1,393,161	428,302†

\*Including interest on underlying bonds and on receiver's certificates and obligations.  
†Surplus in 1913.



The Wabash

## Letters to the Editor

### "STATISTICS"

CHICAGO, Ill.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The superintendent of the Uppannattit division arose leisurely at 9 a. m. After an invigorating cold shower he donned an immaculate morning suit carefully laid out by his valet, and engulfed a hearty breakfast of ham and eggs. Strolling down to the office he cheerfully greeted the force of industrious clerks who had been absorbed in their duties since early dawn.

Upon his rosewood desk he found, among the many business and social communications, a set of large and costly prints covered with minute figures purporting to show the result of his mental and physical efforts at some previous period. For the superintendent of the Uppannattit division was in direct charge of 500 miles of railroad valued for taxation purposes at \$100,000 per mile and for political pyrotechnics at but \$1,000 per mile, and his responsibilities were, indeed, great.

Defly flicking the ashes from his imported cheroot he reached for his magnifiers and glanced complacently up and down and hither and thither on and across the aforesaid sheets. Then with an exclamation of impatience he drew from a drawer a miniature transit and taking his bearings on line 102 sighted across in an easterly direction to a point. Registering great surprise and perturbation he pushed a button and his chief scribe instantly stood trembling at his side.

"What, ho, varlet!" cried the superintendent of the Uppannattit division, "didst thou not tell me and seek to prove by figures cunningly devised that the operation of my division for the month shown hereon was the best ever?"

"Even so, my lord."

"What then meaneth this item which indicateth a decrease in the trainload and eke in the loading of cars?"

"Thou hast thy finger upon the wrong line, sire. Owing to an eccentricity of the apparatus used in preparing these great and good statements, one must needs look closely to observe that the figures upon this sheet have in places crept up a notch; but nevertheless it is as thou sayest: the Uppannattit division is in disgrace."

"Off with thy head, as thou explain it not!"

"It may not be done to thy satisfaction, sire, as the ways of those who prepare these prints in a far off city are devious and past understanding. But thus it seemeth to me: Business, as thou art aware, was good in this month of March—but, as thou wilt recall, in the month preceding was it simply rotten."

Here the door of the sanctum was cautiously opened and a menial tiptoed in with a message reading:

Jonathan Jones,

Superintendent, Uppannattit division.

It falleth to my lot to inform thee that the general manager is sorely grieved because of the defection on thy division in the month of March, and hath been taken to task by the vice-president, and the president hath been desired by the chairman to forward due explanation instantan to the stockholders. Let me have thy strong reasons in detail.

JASPER JENKS,

General Superintendent.

The menial and the c. s. lifted the superintendent from the floor, dusted his Prince Albrecht trousers and reseated him in the Henry VIII chair. Holding his throbbing brow he murmured "Go on; proceed."

"Yea," continued the c. s., "verily the month of February was rotten, especially the last portion thereof, and (behold the cunning of the distributors of accounts), they have, I am credibly informed, taken away the tonnage for the last part of March, which was great, and substituted therefor the last part of February, which was poor, but the train mileage and all other things incident to the heavy business left they unchanged. Ergo, the many train miles and car miles into the few ton miles

maketh thy showing bum and to appear exactly as it was not."

"Give me my bonnet!" bellowed the superintendent of the Uppannattit division, "and I will away to the distant city and put a head upon those who do thus play fast and loose with my reputation."

"Mayhap they do need such an appendage, most noble chief, but I beg thee stay thy hand, and it may perchance be that if thou canst retain thy proud position yet another moon, fate will turn the tide in thy favor."

And it was even so.

A month later the superintendent of the Uppannattit division approached his desk in fear and trembling, in sackcloth and ashes, for the report covering the gentle month of April (now far gone) was due, and he felt that his efforts had been without avail.

Feverishly he inspected the figures, and a glow of pride overspread his countenance. Summoning his c. s. he spake:

"Hie thee instantly to the nearest apothecary and bring hither a magnum of his choicest vintage, for verily I have excelled myself and have administered the affairs of this great corporation passing well!"

But the c. s. replied, "Say not so—for thou wast asleep at the switch in the April month. Tonnage slumped and thou didst not get on the job with sufficient promptitude in cutting down thy train miles, and also there were many cost items that thou mightest have reduced."

"How then can it be, base churl, that my trainload has increased over last year, and my expenses per hundred ton miles are much less?"

"Hast thou forgotten, O Chief, the lesson of the last month? Behold the heavy tonnage omitted from that statement is included in this month, and hath offset the train mile fault, and hath also helped diminish the ton-mile cost. But didst thou note the item of casualties, for which Providence and not thou art responsible? Last year it was ten thousands of dollars greater than this for the same month."

"Methinks thy words have weight, but seest thou this item of rails for which I spent but 10 cents this April against \$8,000 a year ago, which is creditable surely, and for ties, which last year cost me \$17,000.01 there showeth this year a credit of \$3,247. Can one do better than expend \$3,247 less than nothing for ties in one month?"

"It is even the opposite of what thou supposeth, sire. More ties and rails were used this year than last, but those entrusted with thy good name have discovered various credits to place in these accounts which worketh in thy favor now but next year will go grievously against thee. Also there have occurred in previous months divers errors which it hath been essayed to 'correct' by likewise distorting the figure of another month."

Thus argued the superintendent of the Uppannattit Division and his c. s. long and steadfastly, and at the end thereof the superintendent wept bitterly and wailed:

"How, then, is it possible for one to make a fair showing? Verily I perceive it resteth not with me but with those afar off who know me not nor my travailings. Might not these sheets be prepared in such wise that those to whom they should be most useful might find benefit therefrom and avoid the grievous embarrassment of criticism and needless explanation?"

"All things are possible, O Chief, but 'there are three things which are too wonderful for me, Yea, four which I know not: The way of an eagle in the air; the way of a serpent upon a rock; the way of a ship in the midst of the sea,' and the way of an accountant with operating statistics."

And the superintendent of the Uppannattit Division moralized:

"Lo, it seemeth to me that a tender infant spanked when innocent of wrong doing feeleth the hurt as greatly as doth his justly chastised brother; and the pink tinge endureth as long. It mattereth not that the punisher later realize his injustice, because, forsooth, the memory of punishment inflicted and received remaineth long after the merit thereof hath been forgotten."

C. C.



# The "Campaign of Candor" for Higher Passenger Fares

## Railroads in Illinois and Other States Appeal Direct to People for Restoration of Half of Reduction

As has been briefly noted in previous issues, the railroads have recently undertaken a campaign, by means of a direct appeal to the people, for increased passenger fares in the states of Ohio, Indiana, Michigan, Illinois and Iowa, and in Nebraska and Missouri efforts are being made to get an increase in fares through the state railroad commissions.

The campaign in Illinois was inaugurated on Wednesday, February 3, when a committee of railroad presidents, with C. H. Markham, of the Illinois Central, as chairman, held a conference with Governor Dunne at Springfield, and asked his co-operation. The plan was outlined to the governor in a statement signed by Mr. Markham, H. U. Mudge, of the Chicago, Rock Island & Pacific; W. J. Jackson, receiver of the Chicago & Eastern Illinois; W. G. Bierd, of the Chicago & Alton; E. P. Ripley, of the Atchison, Topeka & Santa Fe; H. R. Kurrie, of the Chicago, Indianapolis & Louisville; S. M. Felton, of the Chicago Great Western; Hale Holden, of the Chicago, Burlington & Quincy; A. M. Schoyer, vice-president, Pennsylvania Lines; W. A. Gardner, of the Chicago & North Western; A. J. Earling, of the Chicago, Milwaukee & St. Paul, and E. B. Pryor, receiver of the Wabash. The statement to the governor was in part as follows:

For some years the railroads have been facing a condition of stationary or declining rates for their service, and of steadily increasing cost of operation, due to advances in wages, material and supplies, to regulatory legislation, to installation of safety devices, and to heavier and more expensive equipment necessitated by public demand for better service and accommodation. It is unnecessary to discuss this situation in detail. The whole country knows of it. Disaster has overtaken some roads on account of it; others have suffered heavily, and all have been affected.

An important factor in these results has been a 33½ per cent reduction in maximum passenger fares made by the passage of the two-cents-a-mile law in Illinois and in several other states.

Application to the Interstate Commerce Commission for acceptance of rate amendments to relieve the situation resulted in the most searching inquiry into the subject of railroad operation and revenues ever undertaken in this country. In this inquiry the generally unprofitable character of railroad passenger service was emphasized to a degree that impelled the commission to give it special consideration, although the question of passenger fares was not specifically or officially before that body. The findings of the commission in respect to passenger fares, together with comments by Louis D. Brandeis, its counsel, and by Commissioner Daniels, are attached hereto.

Therefore it is at the direct suggestion of the Interstate Commerce Commission that we are now presenting the facts in this situation to the people of Illinois and requesting action by their elected representatives with a view to securing the relief recognized and virtually recommended by the commission.

When the two-cents-a-mile law went into effect in 1907, the railroads of Illinois accepted it and made a sincere attempt to live under it without impairment of passenger service. The law has not worked out as some of its advocates expected. The contention that reduction in fares would stimulate travel, and thereby make up the revenue lost, has not been borne out by experience.

From June 30, 1903, to June 30, 1907, being the four-year period preceding the passage of the two-cents-a-mile law, the number of passengers carried one mile in Illinois increased 22.33 per cent; while for the year ending June 30, 1913, compared with the year ending June 30, 1909, which is the latest four-year period for which statistics have been published, the increase in the number of passengers carried one mile was only 17.43 per cent.

The passenger revenues in the year ended June 30, 1913, increased 62.47 per cent over the year ended June 30, 1903. Total revenues in Illinois increased 81.66 per cent for the year ended June 30, 1913, over the year ended June 30, 1903; while operating expenses and taxes increased 98.58 per cent.

The result of this was that, notwithstanding the large investment of railroads in new lines, improvements to existing lines and investments in additional and improved equipment, the net railroad revenue in Illinois increased only 42.25 per cent.

The average distance traveled per passenger in the state of Illinois for the year ended June 30, 1907, before the two-cents-a-mile law went into effect, was 28.10 miles, and the average fare paid was 54 cents. The average distance traveled per passenger for the year ended June 30, 1913,

under the two-cents-a-mile law, was only 25.16 miles, and the average fare paid was only 44 cents.

The number of employees of railroads in Illinois in 1903 was 103,385 and in 1913 167,886, an increase of 62.39 per cent. To these Illinois employees the railroads paid \$63,674,627 in 1903 and \$122,158,824 in 1913, an increase of 91.85 per cent.

These figures are from the reports made by the Railroad and Warehouse Commission of the state of Illinois, the figures for the year ended June 30, 1913, being the latest official figures which are available.

Railroads operating in Illinois, as well as other states where the maximum rate of fare is fixed at two cents a mile, are at a disadvantage in comparison with many states where passenger revenue opportunities are greater. And this, too, has a bearing on the contention that the reduction of fares in Illinois would stimulate travel and make up the loss. Density of population makes volume of railroad travel. The greater the volume the lower the cost of handling. This is a law of trade. Passenger fares, therefore, ought to be lowest in the more densely populated states. But they are not. In the eastern states of Pennsylvania, New York, Massachusetts, Rhode Island, Connecticut, New Jersey and Maryland, density of population is considerably greater than in Illinois, yet maximum fares are higher in all of those states than in Illinois, and not through public indifference to the question. Within a recent period, and since the beginning of the general inquiry undertaken by the Interstate Commerce Commission, this subject has had careful consideration in the New England states, where population is more dense and travel greater than in any other part of the country, and in consequence maximum legal rates have been restored to 2½ and 3 cents a mile.

In presenting this situation to the people of Illinois, the railroads operating in the state are acting in direct response to the suggestion of the Interstate Commerce Commission (which has already approved tariffs providing for increase of interstate rates to a 2½-cent basis), and in accordance with the commission's expressed belief that the people of this state will cheerfully acquiesce, as the people of New England have done, in reasonable increases, and that the necessary legislative authority will be promptly given.

We propose to present our case to the people of the state frankly and without reservation. Representatives of the railroads are prepared to go before commercial and civic organizations of every kind, and before public meetings, to discuss every phase of the question that can be raised.

In due course a bill for an amendment to the existing passenger fare statute will be presented to the general assembly for consideration and action. We look forward to making the equity and justice of our request so clear to the people of Illinois that the general assembly will not hesitate to enact the proposed amendment, and that it will receive your favorable consideration.

On the following day Governor Dunne replied to the committee of presidents by letter, as follows:

In answer to your communication of this date, presented in person, I would respectfully state that I favor a full and fair hearing upon your application to increase passenger rates from 2 cents to 2½ cents per mile, and I have no doubt the legislature will give you such a hearing.

Whether the prayer of the petition should be granted is dependent upon many facts which can only be developed by a painstaking investigation. I do not believe there is any disposition on the part of the people of the state of Illinois to insist upon confiscatory rates or rates unfair to railroads.

The present 2-cent rate, however, has been in force in this state, without any vigorous protest on the part of the railroads, for nearly eight years, and if the rate is to be increased you must be prepared to satisfy the representatives of the people that the present 2-cent rate is clearly unfair and unremunerative. You should be given ample opportunity to be heard fairly and fully upon the question, and I shall keep myself fully advised of all the facts brought out in such hearing. Should the matter reach me for official consideration I shall endeavor to act fairly and justly to both the people and the railroads of this state, without favoring either unremunerative or extortionate charges.

The Illinois campaign is in charge of a committee of which S. G. Hatch, passenger traffic manager of the Illinois Central, is chairman, and E. E. MacLeod, chairman of the Western Passenger Association, is secretary. This committee has made elaborate preparations for the campaign and has collected statistics and arguments to be presented at the various proposed meetings with commercial clubs and to be given to the press.

This committee made arrangements for meetings with commercial organizations on Tuesday of this week at Galena, Freeport, Rockford and Joliet; on Wednesday at Polo, Dixon,

Mendota, Belvidere, DeKalb and Sterling; on Thursday at Peru, La Salle and Peoria, and on Friday at Monmouth, Galva and Galesburg. Other meetings are arranged for next week. One of the lines at each point where meetings will be held was appointed chairman of a sub-committee on arrangements, consisting of the representatives of the initial lines at those points. Officers, both of the passenger department and of the operating department, were present at each of these meetings, and various individual lines have arranged for other meetings to be held at local points on their lines, at which officers of the roads will present the case of the railroads for the increased fare.

The railroads have not yet taken up the question with the legislature and propose first to conduct a popular campaign. Newspapers have been furnished with statements by railroad men outlining the reasons for seeking a restoration of half of the reduction made by the legislature in 1907, and with copies of the address to the governor and his reply, and beginning on February 5, a series of large display advertisements were published in a large number of newspapers throughout the state. Other somewhat similar advertisements will be published later.

A petition to the Illinois legislature has also been prepared and sent out by the chief executive of each line to its agents and representatives, for the purpose of obtaining the signatures of as many of the local citizens as may be interested in the matter, and believe the railroads entitled to increased revenues to meet increased expenses. The petition circulated quotes from the Interstate commission's remarks on passenger fares in the five per cent case, including the following statement: "The traveling public is giving expression to its demands for better service, better accommodations and for the adoption by carriers of all the devices that make for safety. A public that demands such service cannot reasonably object to the payment of a reasonable compensation therefor." The petition itself is as follows:

Believing it to be to the interest of the public as a whole that the transportation industry, second in importance only to agriculture, should receive a reasonable compensation for its services, we hereby petition the legislature of the state of Illinois to so amend the laws as to fix the maximum rates of fare for passengers traveling in Illinois at two and one-half cents per mile, thus restoring to the railways one-half of the reduction which was made in their passenger fares when the present law, effective July 1, 1907, was enacted, reducing such fares from three to two cents per mile.

A pamphlet containing arguments on the question of passenger fares in Illinois has also been prepared to be distributed to agents and representatives along the line of every railroad in the state. Supplies are to be kept on ticket counters at the more important towns to be handed out to the public, and copies will be furnished to the newspapers. This pamphlet is headed "Why the Illinois Railroads Are Asking for 2½-Cent Passenger Fares" and besides including some of the statements already referred to in the address to the governor, and various other arguments, also includes the previously mentioned quotations from the Interstate Commerce Commission, Mr. Brandeis and statements by Commissioners Daniels and Clark. The pamphlet concludes as follows:

The Illinois railroads are frankly stating the case to the public. Every citizen is urged to give it careful thought and to ask of his legislature favorable consideration.

A similar pamphlet has been circulated in Ohio and Indiana.

The campaign which has just been started in Illinois is in many ways similar to those which had previously been started in some of the other states, especially in Ohio and Indiana. In Indiana a committee of passenger officials first called on Governor Ralston and members of the Indiana Railroad Commission and presented their case, following which a large number of meetings were arranged and held with commercial organizations in the principal towns throughout the state. The same procedure was followed in Ohio, and many commercial organiza-

tions have adopted resolutions favoring the position of the railroads, while others have taken the stand that the railroads ought to present more conclusive figures to show the exact cost of performing passenger service in relation to the revenues.

In Michigan the roads have announced their intention to ask for an increase in fares and railroad officers have addressed various meetings. The receivers of the Pere Marquette first submitted a petition to the legislature, asking for an increase of fares to 2½ cents, and it was reported in the newspapers that the petition was regarded with some favor by many of the legislators. Later a bill was introduced providing for an increase in fares on all roads, and it was reported that the legislature was less inclined to grant an increase for all roads than to the Pere Marquette alone. One member has introduced a bill providing that fares on railroads whose passenger earnings were less than \$3,000 a mile in 1914, shall be 3 cents a mile, and on roads that earned over \$3,000 a mile in 1914, the fare shall be 2½ cents a mile. It is reported that the governor has suggested that a special committee be appointed to make investigations to present facts and figures to the legislature before that body takes any action.

In Nebraska the Missouri Pacific asked the Nebraska commission to allow an increase in passenger fares from 2 to 3 cents per mile. The commission said that it had no jurisdiction to do so, and the case is now pending before the supreme court of the state in which the Missouri Pacific is arguing that the constitutional provision giving the commission power to fix just and reasonable rates takes precedence over the specific statute authorizing the 2-cent fare. A bill has been introduced in the Nebraska legislature providing for an increase in the legal state fare from 2 to 2½ cents a mile.

## LABORATORY TESTS OF STEEL

At the November meeting of the Canadian Railway Club the characteristics of the materials used in railway service were considered. While the paper and the discussion were more or less elementary some important points were brought out in connection with laboratory tests on metals. Attention was called by Professor Keay of McGill University, to what he termed the most abused expressions in engineering, namely, the elastic limit and the yield point. The yield point is commonly considered as being approximately one-half of the tensile strength, but in experiments with the Martens or mirror type of extensometer it has been found with ¾ in. flange steel that the true elastic limit is in general about two-thirds of the yield point. For this reason it is believed that greater care should be exercised in the use of these two terms.

M. D. Hayes of the Midvale Steel Company also called attention to the difference in the value of the elastic limit of a material when the extensometer was used and when the reading was taken at the drop of the beam. In one case the extensometer showed the elastic limit to be 49,000 lb., while the "drop of the beam" method showed an elastic limit of 61,000 lb. Unless the method of test is included in the specifications the manufacturer will have an excessive amount of leeway. Another point also brought out by Mr. Hayes was the importance of a microscopic examination of the structure of steel in addition to a test of its physical and chemical characteristics. By making this examination a much better idea of the way in which the steel is made is obtained, and while the chemical analysis of two pieces may be the same, the microscopic examination will insure that they are of a correct structure.

**RAILWAY CONSTRUCTION IN SALVADOR.**—In the Republic of El Salvador some successful surveys have been made for a new railway from Metapan to Ahuachapan. This line, when completed, should open up a valuable and particularly rich tract of country which until now has been very much neglected and held back for lack of transportation facilities.



## Plans for the New Union Station at St. Paul, Minn.

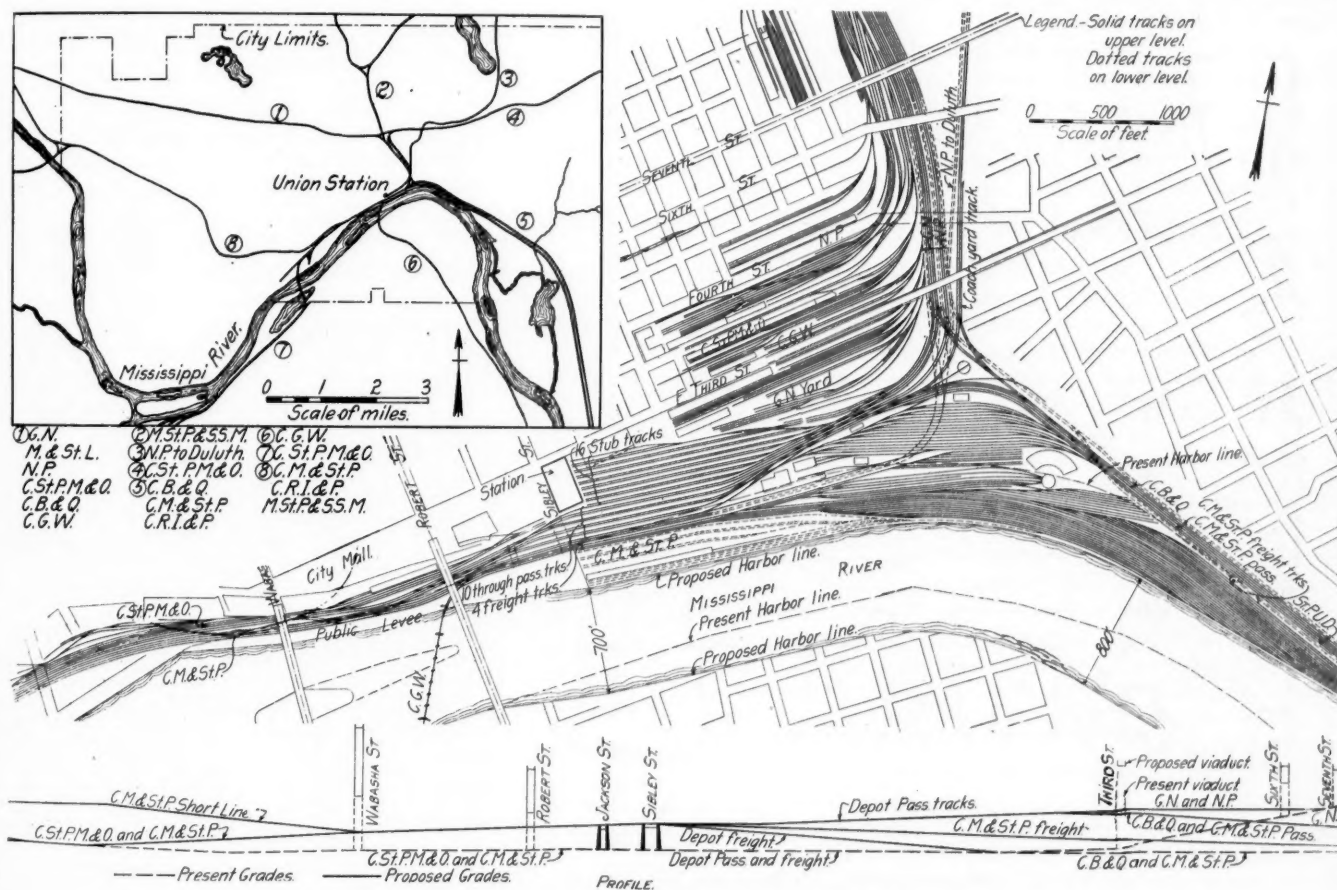
## A \$15,000,000 Passenger Terminal Development Is Proposed to Serve the Nine Roads Entering the City

The general plans for a new union station have been completed by the St. Paul Union Depot Company, and were recently submitted to the city council in asking for the ordinances which are necessary before the work can be undertaken. While the need for more adequate passenger terminal facilities at this point has been realized for some time, action was made imperative when the old station was destroyed by fire on October 3, 1913. The location of the terminal property between the Mississippi river and a well-developed commercial section of the city has made the problem of locating an enlarged terminal very difficult, and the necessity for considering the numerous and somewhat conflicting interests of the various roads has also prevented an earlier completion of the plans.

This terminal is used by all of the nine roads entering the

St. Paul, Minneapolis & Omaha's Chicago and Duluth trains make a reverse movement in the station, entering from and leaving for the northeast. The Chicago, Burlington & Quincy trains also reverse, entering from the southeast and leaving for the northeast or vice versa. The Chicago, Milwaukee & St. Paul and the Chicago, Rock Island & Pacific trains make a through movement between the west and the southeast approaches. The Chicago Great Western, the Minneapolis, St. Paul & Sault Ste. Marie trains to and from the east and the Chicago, St. Paul, Minneapolis & Omaha's Kansas City trains make a through movement between the west and the northeast approaches.

These operating requirements are met in the proposed plan by a combination stub and through terminal with flexible track



**Map of St. Paul Showing Entrance of the Nine Railways and Location Plan Showing Proposed Union Station**

city, the Northern Pacific, the Great Northern, the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul, the Chicago, Rock Island & Pacific, the Chicago, St. Paul, Minneapolis & Omaha, the Chicago Great Western, the Minneapolis, St. Paul & Sault Ste. Marie, and the Minneapolis & St. Louis. There are three main approaches to the station, from the west, the northeast and the southeast. The operation of the trains of the various roads can be divided into seven classes. The Great Northern, the Minneapolis & St. Louis, and the Northern Pacific main line trains terminate their runs at St. Paul, entering the station from the northeast. A few Chicago, Burlington & Quincy suburban trains terminate there, entering from the southeast, and the trains of the Minneapolis, St. Paul & Sault Ste. Marie from the northwest enter from the west. The Northern Pacific's Duluth trains and the Chicago,

connections to the three main approaches, and a 218-car coach yard conveniently placed for the rapid switching of equipment in remaking the numerous through trains which break up at this point. A further improvement is effected in the new plan by the separation of grades at street crossings and between freight and passenger tracks in-so-far as this is possible. All passenger tracks in the terminal will be elevated, the through station tracks being carried past the station building on a viaduct. In general the freight tracks will remain as at present on the lower level.

In order to secure the needed property for the enlargement outlined in this plan, it is proposed to move the channel of the Mississippi river towards the south a maximum distance of about 400 ft. As the property adjoining the river on the south which will be destroyed by this move is relatively cheap, this plan was

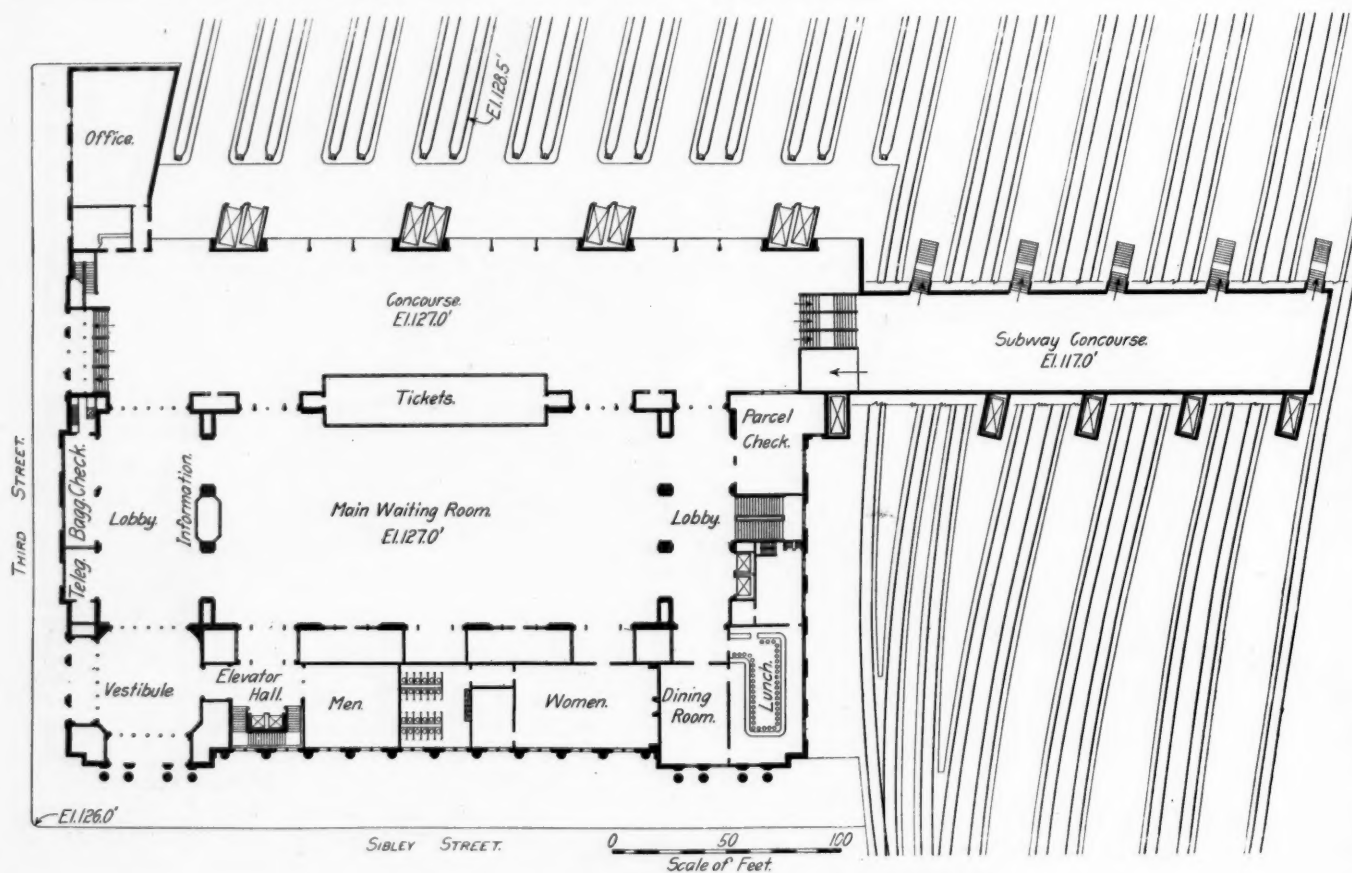
considered preferable to an expansion to the north involving highly developed property. Under the proposed plan the area of terminal property will be increased from 17.2 acres to 54.2 acres, the mileage of tracks from 9.2 to 24.9, the number of passenger tracks from 14 to 26, the number of freight tracks from 2 to 4, and the capacity of the coach yard from 100 to 218 cars.

The new station building will be located on the same site as the old one with a 315-ft. front on the east side of Sibley street and 220 ft. on the south side of Third street. The station will have three main levels. The middle one, at the track level, will contain the main waiting room, concourses, etc., and will connect at grade with the streets at their intersection. Sibley street is to be carried down toward the river, passing under the through passenger and freight tracks to reach the Milwaukee's freight house and the public levee. The carriage concourse will be entered directly from this street near the southwest corner of the building. Third street will descend toward the east so that an entrance for baggage, mail and express wagons can be provided

Sibley street side of this main waiting room will be located additional telegraph and telephone booths, news-stands, etc., and opening directly from it will be a room for women, 35 ft. by 60 ft., and one for men with the barber shop, bath and toilet rooms directly below.

The main waiting room will be joined on the south by a wide corridor with stairs and elevators connecting it with the carriage entrance below and the rest and emergency rooms above. Adjacent to this stairway will be a parcel check room 30 ft. by 40 ft. providing checking facilities both on the main floor and at the basement level. The ticket office, 200 ft. by 100 ft., will be located between the waiting room and the train concourse, with windows opening on both, and will be surmounted by a gallery from which trains will be announced.

The train concourse, which is to be 60 ft. wide by 350 ft. long will be entered from Third street at the north end, or from the main waiting room and lobbies on the west, the aggregate door openings on this side amounting to 130 ft. in width. The 16 stub tracks will be reached directly from the concourse, through



Main Floor Plan of Proposed Union Station at St. Paul, Minn.

on the basement level opposite Wacouta street. The base course of the new building will be of rough pointed Minnesota granite, the exposed portions of the walls of Bedford or similar stone, and the waiting room, which is exposed to view, of brownish-red tile.

The majority of the passengers will enter the station from the main entrance on Third and Sibley streets, which will open into a vestibule 45 ft. by 45 ft. This entrance will connect on one side with a stair and elevator hall, and on the other with a lobby 45 ft. by 90 ft. leading directly to the main waiting room and to the train concourse. The information bureau, baggage checking room and telephone and telegraph offices are to be located around this lobby. The main waiting room will be 90 ft. by 200 ft., occupying the central portion of the building. It will have a penetrated, vaulted ceiling furnishing ample direct lighting and will be finished with marble floors and wainscoting and sufficient architectural decoration to harmonize with its dimensions. On the

gates equipped with train indicators. At the south end of the concourse a wide staircase will lead down to a subway concourse 40 ft. wide and 200 ft. long under the 10 through tracks, from which stairways will give access to the station platforms serving these tracks. It is estimated that a person entering the station, purchasing a ticket and checking baggage will walk 450 ft. from the main entrance to the average train location.

The baggage will all be handled in one baggage room on the basement floor adjacent to Third street, with an area of 20,000 sq. ft., this relatively large area being needed on account of the unusual amount of transfer business which will be handled. The baggage will be trucked to trains through a subway extending to the extreme ends of the train platforms, where it can be raised to any of the platforms by one of the 25 elevators. Mail and express matter will be handled in a similar manner from the rooms under the north side of the train shed. The area provided for mail and express matter will aggregate 46,000 sq. ft.



In addition to the baggage, mail and express quarters, and the carriage entrance mentioned above, the basement floor will contain the immigrant quarters and various mechanical equipment. The upper story of the building will contain offices, meeting rooms, kitchen, emergency room and women's room.

All of the large rooms in the station will be lighted indirectly by electricity, and will be equipped with the indirect heating and ventilating system. The power for lighting, heating and ventilating the station will be supplied from a power house located in the terminal yard.

The plans for the new station have been prepared by an engineering committee composed of Ralph Budd, assistant to the president, Great Northern, chairman; C. W. Johnson, consulting engineer, Chicago, St. Paul, Minneapolis & Omaha, and C. F. Loweth, chief engineer, Chicago, Milwaukee & St. Paul. It is estimated that the new terminal will cost between \$15,000,000 and \$20,000,000, that the work of changing the river channel will require about 15 months, and that the entire project will consume approximately four years.

### RATE ADJUSTMENTS IN SOUTHEASTERN TERRITORY

The carriers in southeastern territory are now engaged in making extensive adjustments in their freight rates to make them conform with the findings in the case entitled Fourth Section Violations in the Southeast (30 I. C. C., 153).<sup>\*</sup> In connection with this work they have recently issued a statement bearing the date January 29, 1915, addressed "To the People Served by the Railroads of the South," and signed by presidents J. R. Kenly of the Atlantic Coast Line, W. A. Winburn of the Central of Georgia, M. H. Smith of the Louisville & Nashville, W. J. Harahan of the Seaboard Air Line, and Fairfax Harrison of the Southern.

The statement follows:

An order of the Interstate Commerce Commission, pursuant to requirements of federal law, compels a general revision of southern freight rates. It is proper that the people of the south should be informed as to the reasons for this revision and the principles upon which it is being made.

Excepting the Norfolk & Western, Chesapeake & Ohio and Virginian Railways, which lie in official classification territory, the railroads of the southeast receive virtually no part of the 5 per cent increase in rates recently acquiesced in by the Interstate Commerce Commission. While the need of the carriers of the south for increased revenue is certainly no less than is that of the northern and eastern roads, that need is in no way related to the revision of rates now in progress which arises solely from the necessity of more nearly conforming to the so-called "long and short haul clause" of the law as amended in 1910, and as now construed by the Interstate Commerce Commission.

The original Act to Regulate Commerce forbade the making of lower rates for a longer than for a shorter distance within the same line or route under substantially the same circumstances and conditions. The carriers were free to meet competition as they found it and were required to answer only upon complaint as to the reasonableness of their acts.

The amendment of 1910 deprived the carriers of the right to initiate departures from the long and short haul requirement, and they may no longer meet competition as they find it if the long and short haul requirement of the law is involved, unless they can first obtain the approval of the Interstate Commerce Commission.

They were furthermore required, by this change in the law, to apply to the commission for authority to continue in force rates existing at the time of its passage which contravened the long and short haul principle.

The existing rate structure of the south is not the creation of traffic managers of this generation. It is an inheritance from

those who built the roads, and finds its explanation largely in the geography of the south, and in a public policy which encouraged its creation. The changes now in progress are not of the carriers' choice.

Water competition, the most important factor in bringing about departure from the long and short haul principle of the law, has been peculiarly influential on the rate adjustments of the south, surrounded as it is on three sides by navigable water and penetrated by navigable streams. Termini of the first roads were on navigable waters and rates between those termini were from the beginning depressed because of this water competition. When, subsequently, railways were extended to the interior, distributing points were thereby created, where there arose competition of two or more markets, or of two or more carriers, resulting in depressions in rates, even when there was no direct water competition.

These conditions undoubtedly contributed to the commercial and industrial development of the interior south, and, while they resulted in more frequent departures from the long and short haul principle of the law, the carriers had every reason to believe that their practice had the approval of the public, even when it was not directly the result of public demand.

Now, the Interstate Commerce Commission, pursuant to the requirements of an amended law, has concluded an enquiry into rates from the eastern seaboard, including the Virginia cities, from south Atlantic and Gulf ports, and from Ohio and Mississippi river crossings, into the southeast and Mississippi valley territory. As a result the commission has in large measure condemned existing departures from the long and short haul requirement, except where justified by competition beyond the control of the rail carriers, a phrase which came to be restricted to mean direct or indirect water competition.

Obviously, the removal of inequalities condemned by the commission, by reductions only, would result in disaster to the carriers. This fact is recognized by the commission, which, in its review of the situation, stated:

It is entirely clear that the revenues of a large percentage of the lines in the southeastern territory would be so impaired by such a procedure as to make it impossible for them to meet their operating expenses, taxes and fixed charges and leave their stockholders even a moderate return.

It is equally obvious that it would be unfair to punish the carriers, in conforming to a changed public policy, for acts which at the time of commission were approved by public opinion.

Hence in working out the order of the commission such elevation of rates to the depressed points must accompany reductions to the much larger number of intermediate points as will at least preserve the revenues of the carriers.

The task of revision is no easy one. It has been undertaken in loyal effort to conform to the law, as now interpreted, and to be fair to all.

Departures from the long and short haul principle in the south are not confined to interstate traffic. There are in the south a great many intrastate rates that do not conform to the principle. If undue discriminations are to be avoided, these intrastate rates must be brought into harmony with the revised interstate adjustment being made under the direction of the Interstate Commerce Commission. It is the purpose of the railways of the south to take up each intrastate revision with the several state railroad commissions.

**BRITISH RAILWAYMEN AND THE WAR.**—In a review of the labor conditions in the United Kingdom during December, which has been issued by the British Board of Trade, it is stated that as regards railways, the companies have been compelled to apply to the war office for permission to put pressure on their employees not to enlist, and the number who have joined the forces has therefore only risen slightly since the last report, and is now about 60,000 out of some 600,000 employed. In view of the abnormal pressure of Christmas and the demands of the government for transport, the companies have been compelled temporarily to fill places to some extent.

<sup>\*</sup>An abstract of the decision was given in the *Railway Age Gazette* of May 15, 1914, page 1067.

# Arbitration of Engineers' and Firemen's Demands

## Testimony on Actual Earnings of Enginemen; Mechanical Improvements; Stop-Watch Check on 2,000 Firemen

The statistical testimony concerning the actual wages received and work performed by engineers and firemen on the western railways, which was presented in connection with elaborate exhibits introduced by J. H. Keefe, assistant general manager of the Gulf, Colorado & Santa Fe, at the hearing in Chicago before the board of arbitration on the demands of the western engineers and firemen, was concluded on February 3, and Mr. Keefe was followed by W. J. Tollerton, general mechanical superintendent of the Rock Island Lines, who testified regarding the decrease in work required on account of the introduction of improvements and labor-saving devices on modern locomotives.

### EARNINGS LOST BY LAY-OFFS

In Mr. Keefe's testimony engineers and firemen were held responsible themselves for a loss of one-third to one-tenth of their possible earnings through voluntarily laying off a great part of the time. To show what the engineers and firemen could have earned if they had not laid off a large part of the month, Exhibit 30 placed before the board the number of assigned men, the total miles they ran, their hours on duty, their total earnings, their average earnings, and the name of the engineer who received the highest wages in each assignment as well as the amount and name of the engineer who received the lowest wages paid to one man who worked the full month during the month. Coupled with this was a showing of the actual time in which each man's assigned service was performed by someone else showing that he had laid off.

"About three-quarters of the railway service," said Mr. Keefe, "is what is termed 'assigned service.' This means an engine run is assigned to one crew or several crews, and the definite earnings are there for them to take, or to leave for someone else as they choose. Every passenger engineer in assigned service could have earned an average of \$197.79 for a month of 184 hours—an average of only six hours a day if he had earned all that the company offered. The only reason they did not earn this was because they had laid off a considerable portion of the time."

Out of 5,412 passenger engineers, the exhibit shows that only 2,876 worked the full month. Of their total assigned mileage of 22,849,739 miles, they left for someone else to perform 2,410,000 miles, thus losing about 10 per cent of their possible earnings. Similar information given for engineers in local or way freight service showed that these men laid off and lost their pay for 20 per cent of their possible service; engineers in mixed train service for this reason lost 15 per cent of their possible wages; engineers in helper or pusher service lost 25 per cent of their possible earnings; those in yard service, 20 per cent, and those in through or irregular freight service 22 per cent.

Turning to the firemen, it was shown that those in assigned passenger service laid off and lost their pay for 17 per cent of the work offered to them; those in way freight service 22 per cent; those in mixed train service, 27 per cent; those in helper and pusher service, 25 per cent; those in yard service, 25 per cent, and those in through or irregular freight service, 30 per cent.

Lay-offs were shown to range from one day to several months' time in the year, with yearly earnings ranging from \$1,900 to over \$3,000. One engineer laid off 106 days in the year and earned \$3,239. Another, off four months in the year, earned \$2,000. Another who laid off 38 days earned \$3,088 for the year. The average time on duty of engineers in the service covered by these men was about seven hours per day.

These figures include simply the days provided in the assignment, which might be 21, 25, 27 or 31 days, on which the men did not work, and the lay-offs do not include days off which might be provided for in the assignment, such as Sundays.

As a striking example of the high wages now earned by firemen on oil-burning engines, the case of Fireman A. Richardson on the Gulf, Colorado & Santa Fe was cited. He received \$209.89 in the month of October, 1913, for firing an oil-burning locomotive. "The rate now paid of \$3.75 per day is unreasonable," said Mr. Keefe, "when applied to oil-burning locomotives in the passenger service having cylinders of 24 inches or over. This rate was the result of an arbitration so unfair that most of the railways took it out after a year's time limit had expired. Some roads still have the rate, but intended to bring this excessive rate up as one of the wrongs to be remedied in the present arbitration proceedings. They are prevented, however, by the fact that the roads are excluded in this arbitration from bringing forth any of the injustices under which they are working, leaving open for arbitration only the demands of the men. This fireman's earnings of \$3.75 compare with \$4.40 for the engineer, although his position compared with the coal fireman's is a 'snap.' The oil fuel is fed through pipes and regulated by a valve in the cab, the fireman not being required even to leave his seat, except three or four times in an entire 100-mile run, and then only to pour a scoop of sand through the door of the firebox to clean out the flues, which is done by suction."

Charges made by Grand Chief Stone of the engineers' brotherhood that some of the high earnings shown in the exhibit for individual engineers were the result of excessive hours on duty were promptly met by the railways. An investigation of some of the cases pointed out by Mr. Stone was made immediately by telegrams sent to the divisions on which the men worked. One engineer on the Canadian Pacific for whom the exhibit showed an average of 23 hours per day for 19 days to earn \$211 in a month was found to have worked actually 15 hours a day, but to have been paid for 23 hours. Another engineer on the Chicago, Milwaukee & St. Paul who was shown as running 5,090 miles in one month, which Mr. Stone thought excessive, was found to be working on a run of 36.6 miles, for each of which runs he was paid for 100 miles under the minimum day rule. The actual mileage run was only 1,537, consuming 5 hours a day, for which the engineer was paid \$329.65 in one month.

W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, remarked that there were many more firemen shown than engineers. This, Mr. Keefe, said, was partly because firemen laid off more than engineers and were more inclined to leave the service for some other occupation. "Is it not a fact," asked Mr. Carter, "that the work of the fireman is so hard that he gets so tired that he has to lay off frequently?" "I should think not," said Mr. Keefe, "in view of the fact that the figures for firemen on oil-burning locomotives show the same proportion of lay-offs." Charles Nagel, one of the arbitrators, asked if the fact that the fireman is usually a younger man than the engineer and is not so likely to have "settled down" might not have something to do with the number of lay-offs.

Exhibit 30-a introduced by Mr. Keefe showed that the high earnings of engineers and firemen in October, 1913, were exceeded frequently in other months of the fiscal year ended June 30, 1914. Representatives of the brotherhood had claimed that the October figures were abnormal because they applied to a busy month. When the new exhibit was introduced W. L. Park, vice-president of the Illinois Central and one of the arbitrators, remarked that figures for some of the men showed even higher wages than for October, 1913.

### WEIGHTS OF LOCOMOTIVES

In connection with the discussion of engineers' and firemen's wages Mr. Stone told the board that some time after the last award to the firemen, providing for a rate of \$3.75 a day for



firemen on certain classes of engines with cylinders over 24 in., on some of the Santa Fe lines a sleeve or bushing was put in some 25-in. cylinders to make them 23½ in., and the engines were superheated, for the purpose of avoiding the higher rate. He also said that after the award to the engineers, which included an additional payment of 25 cents a day for locomotives weighing over 215,000 lb. on drivers, some roads that had engines stencilled for 217,000 or 218,000 lb. on drivers had them restencilled to show 214,000 lb. For this reason, he said, the demands included a provision for bulletining the exact weights of locomotives. In reply to questions by Mr. Sheean he admitted that he had no direct knowledge as to which of the weights was correct.

Exhibit 31 was a reprint of an exhibit filed by the firemen, to show the earnings of firemen who had just been promoted to engineers, and had been demoted on account of a falling off in traffic, with additional figures inserted to show the earnings of these men while acting as engineers. The original exhibit took no account of earnings of the same men while working as engineers for part of the month, and whereas the brotherhood had stated the average in February, 1913, as \$82.62 for each man, the actual average earnings were \$108.21. This exhibit aroused a heated controversy in which Mr. Carter insisted that he had been furnished the figures by the Conference Committee of Managers. Mr. Keefe replied that the managers had furnished exactly the information asked for and had not known for what purpose it was to be used.

Exhibit 32 showed the length of time pool freight, unassigned or "chain-gang" engine crews were held away from their home terminals during the month of October, 1913, and June, 1914, on each road, including the legal rest period. Mr. Sheean said that this exhibit showed in some cases an extreme length of time which ought to be paid for. The exhibit showed that there were 49,194 crews in June, 1914, whereas there had been 72,000 in October, 1913. In October, 8,085 crews were held away from their home terminals nine hours, and in June, 5,192 crews had been held away for nine hours. One road showed one man away from his home terminal for 100 hours, one man for 84 hours and another for 80 hours.

Exhibit 33 showed the age limit beyond which many of the roads will not employ engineers and firemen. This showed that in most cases roads will not hire an experienced man over 45 years of age, nor an inexperienced man over 35 years of age. "If a man is dismissed from service for some trivial fault after he is 45 years of age he can go and eat snowballs," said Mr. Stone. Mr. Keefe said he could go to some of the roads that do not have an age limit.

#### SOME EXAMPLES OF HIGH EARNINGS

Exhibit No. 34 gave a comparison of the total payroll for the various months of the fiscal year 1914, to show their relation to the figures for the month of October, 1913, for which the detail figures were given for 64,000 men. This exhibit also showed the total earnings for the entire year of those men who were shown in Exhibit 30 to have earned the highest wages in assigned service for the month of October, 1913. Mr. Keefe explained that this was not necessarily the maximum paid during the year, but that no check had been made for the other months. This exhibit showed one engineer who ran a local freight train between Helper and Green River on the Denver & Rio Grande for 27 days in one month and earned \$246.86 for this service, and also made one round trip of 354 miles in passenger service one day and earned \$16.10 additional. Another engineer on the Great Northern, working 27 days, made a round trip mileage of 2,444 miles in 353 hours, or 13.1 hours per day, 6.8 hours per trip, and earned \$291. An engineer on the Atchison, Topeka & Santa Fe whose average earnings per month throughout the year were \$239.65, in one month earned \$264, and for the year earned \$2,875.77, although he laid off for 25 days of his assignment during the year. During his "high month" he made a round trip mileage of 4,320 miles in 6.3 hours

per day, 3.1 hours per trip. Mr. Stone said that this man leaves Topeka at 7:30 a. m. and gets back to Topeka at 10:10 p. m., and that he is not compensated for the large amount of time he is idle at St. Joseph between trips, "although he has sold the company all that he has to sell—his time." Mr. Stone and Mr. Carter tried to show that in order to earn the wages mentioned the men had to work overtime, and that most of the lay-offs were on account of sickness or exhaustion, also that the mileage run would depend on the amount of traffic, and that a man would not have the opportunity to work his full assignment in a period of traffic depression. Mr. Stone also objected to figures showing what a man would have earned if he had worked full time, saying that was treating a man as a machine.

#### FIREMEN WORK 31 PER CENT OF TIME ON DUTY

A feature of the testimony of W. J. Tollerton, general mechanical superintendent of the Rock Island Lines, was an exhibit compiling the results of over 2,000 actual stop watch tests, showing the exact amount of time spent by the fireman in performing his various kinds of work. This showed that more than two-thirds of the time was left available for viewing the scenery along the right of way.

"These stop watch tests," said Mr. Tollerton, "were made on 20 representative western roads by traveling engineers who remained in the cab of the locomotive and recorded every move of the fireman. If he was engaged in any duty at all, either shoveling coal into the firebox, shoveling down coal, sweeping the deck, shaking the grates, or doing anything other than sitting still on the seat box or standing in the gangway idle, he was credited with the performance, which was classified and timed by the stop watch. The average of these 1,556 trips on locomotives of all kinds shows that the fireman was engaged in supplying coal to the firebox 1 hour and 40 minutes, less than one-fifth of the time he was paid for. For 12 per cent more of the time he was either sweeping the deck, shoveling down coal, shaking the grates, hooking the fire or operating the injector. In all he was occupied at some work just 31 per cent of the time, while for 6 hours and 5 minutes, or 69 per cent of the time, he had absolutely nothing to do but look at the scenery."

"On engines of 185,000 lb. or over on which two firemen are demanded, 474 tests were made on 16 roads. On these locomotives the fireman spent 23 per cent of his time shoveling coal into the fire and 10.5 per cent more at other duties, while he had nothing whatsoever to do for 66.5 per cent of the time."

"An accurate count was kept of the number of scoops of coal thrown into the fire. By this means it was determined that in the 1,556 tests made only 1,975 pounds of coal, less than one ton, was thrown into the fire each hour."

"Is this within the capacity of a single fireman?" asked James M. Sheean, counsel for the railroads. "Yes," replied Mr. Tollerton, who had testified to having been a fireman himself for a short time; "4,000 or 5,000 lb. is well within the capacity of one man. On all of these tests the fireman used only about one-half of his capacity to handle coal. On over 2,000 observations the fireman spent less than one per cent of his time shaking the grates and less than one per cent more in breaking coal. This indicates there is really no serious room for complaint, and if complaints do exist, they should be handled locally. The railroads have improved conditions in a number of ways."

Mr. Tollerton stated that the test trains were 10 per cent heavier than the average trains in the busiest months and were one per cent longer on the road than the average in the 30 days of heaviest traffic.

"From these observations do you consider two firemen necessary?" asked Mr. Sheean, attorney for the roads. "Absolutely no," replied Mr. Tollerton.

#### IMPROVEMENTS IN LOCOMOTIVE DESIGN

Improvements in locomotive design which have cut one-third from the physical labor formerly required of firemen were described by Mr. Tollerton. "Two new inventions alone, the

superheater and the brick arch," he said, "have effected a saving of 30 per cent in the amount of coal shoveled. These improvements," said he, "render it possible to get the same results with a great deal less coal, correspondingly relieving the fireman. Conservatively speaking, the superheater saves 20 per cent of the fuel."

"Do I understand that with two engines, one equipped and the other not equipped with superheater and performing the same work, the amount of coal shoveled by the fireman on the former will be 20 per cent less?" asked Mr. Sheean.

"Yes, sir," replied Mr. Tollerton, "this has been determined by actual tests and is conservative. There is not only a great saving in fuel but also in water, so that the fireman is bound to save some of his physical effort. Addition of the brick arch effects another saving of 10 per cent in the fuel consumption, so that with these two appliances alone 30 per cent of the fireman's labor is eliminated."

To apply these two devices, it was pointed out, costs over \$3,000 per locomotive. Yet, because 4,000 pounds are thereby added to the engine's weight, the roads would have to pay a higher wage to the fireman under the new demands, although relieved of one-third his shoveling.

Another exhibit introduced by Mr. Tollerton consisted of a reprint of Exhibit No. 51 introduced by the engineers and firemen, containing a number of articles and statements made by prominent railway authorities and various railway and other technical publications, with additions printed in red to show parts of sentences or paragraphs left out in the original exhibit which greatly qualified, and in many cases absolutely contradicted the effect of the parts left in the employees' exhibit.

"These statements," said Mr. Tollerton, "were comments on the great fuel economies and other labor-saving developments which have taken place in spite of the growth in power, but in every instance all reference to the increased fuel economy of the larger locomotives and their savings in labor for engineer and fireman was cut out and only the partial statements presented to the board of arbitration."

Mr. Stone took up cross-examination of Mr. Tollerton on his testimony as to labor-saving devices on modern locomotives. He attacked Mr. Tollerton's defense of the present cylinder basis of compensating engine crews.

"In the eastern arbitration you were satisfied with the cylinder basis, were you not?" Vice-President H. E. Byram of the Burlington, one of the arbitrators, asked Mr. Stone.

"Yes," replied Mr. Stone, "but that water has gone over the dam."

Turning to the labor-saving devices Mr. Stone asked if they had been introduced out of consideration for the engineers and firemen.

"They are the natural results of improvement in railway work, from which both the men and the railways derive benefits," replied Mr. Tollerton.

"Did you not testify," asked Mr. Stone, "that the engineer has been relieved of everything except opening and closing the throttle?"

"That is still one of his duties," replied Mr. Tollerton, "of which I hope we won't have to relieve him. I claim that the evolution of engines has steadily relieved the engineer and fireman of many duties. The large engines have brought increased pay to their crews, but we have never been able to use them to above 75 per cent of their capacity."

"Whose fault is that?" asked Mr. Stone.

"It is the fault of western conditions," said Mr. Tollerton. "The traffic is so light the tonnage is not there except in a few months of the year, and then generally in one direction."

President Carter then took up cross-examination on the stop watch tests, which showed for over 2,000 observations that only 31 per cent of the fireman's time is occupied.

"On your figures," said Mr. Carter, "I compute that the fireman would shovel about 170 pounds of coal one minute and then rest four minutes. Wouldn't he need a rest?"

"Your own figures show him to be resting 80 per cent of his time," said Mr. Tollerton.

#### THE DEMANDS APPLIED TO ELECTRIC SERVICE

How the granting of the same wages and rules to motormen and helpers in electric service as to engineers and firemen in steam service would hit the Southern Pacific on its electrified terminal and suburban lines in Oakland, Cal., was placed before the board by R. E. Hewitt, master mechanic of the Southern Pacific electric lines at Oakland, who qualified the engineers and firemen for electric service when the New York Central electrified its terminal in New York.

"These men are now paid \$5 for an 8-hour average day, the minimum for engineers," said Mr. Hewitt. "It makes no difference to the motorman whether he has one or three motors working, as they are all operated from the master control, and there is no more labor in running a 10-car train than a single car. On the tractive power basis every motor car in the train would mean so much more tractive power. If the train of cars had three motors in it, as is common, the tractive power would be multiplied by three and the necessary wages would be greatly increased with absolutely no more labor."

Mr. Hewitt testified that the only labor asked of the motorman aside from running the train was to carry a small kit of tools to his car. All oiling, lubricating and repairing are done at the shops.

"Do you know of any place in the country where two men are used to run a multiple unit train?" asked James M. Sheean, counsel for the roads.

"I have never heard or read of such a thing," replied Mr. Hewitt. "Even a trolley tender is unnecessary, as the 'pantagraph' trolley takes care of itself. If the motorman became suddenly sick, fainted or otherwise became incapacitated, the controller mechanism would automatically shut off the power and set the brakes."

The difficulties of running a roundhouse with hostlers who would refuse to perform the ordinary roundhouse duties were described by H. Clewer, supervisor of locomotive operation of the Rock Island Lines. "If the hostlers are recruited from the enginemen, as demanded," said Mr. Clewer, "the result would be decreased efficiency, increased compensation and increased expense to the companies in providing additional men at the terminals to perform the labor now performed by the present hostlers. These hostlers are now recruited from roundhouse forces and occasionally from engineers and firemen incapacitated for road service. At the present time the hostlers can be used as general utility men and it is necessary that they be so. If these positions are given to firemen or engineers protected by all the provisions of their schedules, they would refuse absolutely to do anything but handle the locomotive, and for this would receive a higher wage. Due to the seniority rules there would also be a constant change in personnel, resulting in our having men inexperienced at the terminal, which would be disastrous at busy points."

Mr. Carter stated that hostlers' wages should be paid to every man doing any hostler work whatever.

"If the hostler handles an engine 10 minutes and for the rest of the day does odd jobs about the roundhouse, would he have to receive hostler pay for the entire day?" asked Mr. Sheean. "Yes," replied Mr. Carter.

"At Bureau, Ill.," the witness then testified, "there is a man who moves the engine daily 150 feet. The rest of the day he shovels cinders or does any other work at hand. Yet because of handling the engine 150 feet, he would have to be paid hostler's wages for the day."

**RUSSIAN RAILWAY PROJECTS.**—It is reported that the opening of the Amur Railway throughout its whole length is expected to take place in the year 1916. In addition, during the five years 1915-19 the Ministry of Ways of Communication has in view the construction of a considerable number of important new railways, totaling approximately 21,000 miles.



# The Possibility of Fire from Locomotive Sparks

Data Obtained from Tests on the Chicago, Indianapolis & Louisville; Greatest Danger Within 50 ft. of Track

At the December meeting of the Western Railway Club Prof. Lawrence W. Wallace, of Purdue University, presented a paper on the possibility of fire from locomotive sparks. In the summer of 1913 he and Professor Young, also of Purdue, conducted some spark tests on the Chicago, Indianapolis & Louisville, just north of Lafayette, Ind., where there is a 0.77 per cent grade. In preparation for the tests a plot of ground was marked on each side of the track. Five rows of stakes 20 ft. apart, were set at right angles to the track. The stakes in each row were spaced 20 ft. apart, starting from 25 ft. from the center of the track and extending to 125 ft. Beyond this distance the stakes were located 150 ft., 200 ft., 250 ft., 300 ft. and 350 ft. from the center of the track. Pans 12 in. square by  $\frac{3}{8}$  in. deep were placed at each stake. The pans in three or four rows contained paraffine, while

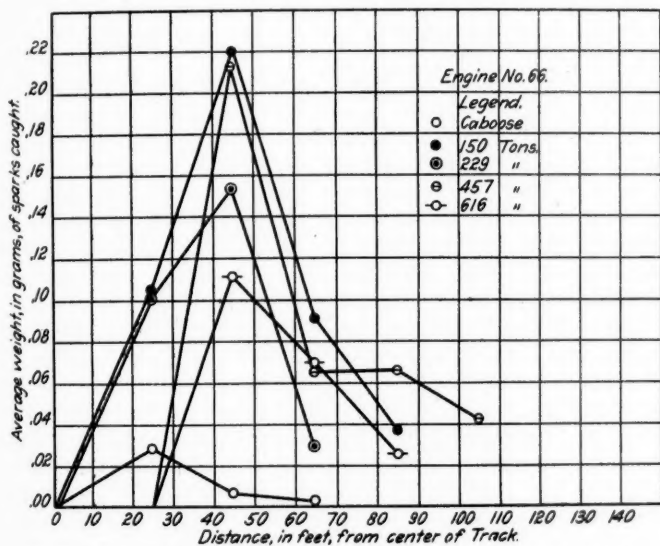


Fig. 1—Average Weight of Sparks Caught from the American Type Locomotive

those in the remaining rows contained cotton fleece. An American type locomotive (No. 66) and a 6-wheel switching locomotive (No. 9) were used in the tests, the former having 18-in. by 24-in. cylinders, 67-in. drivers, a total weight of 100,000 lb., and a tractive effort of 15,800 lb. The switching locomotive had 18-in. by 22-in. cylinders, 45-in. drivers, a total weight of 88,000 lb., and a tractive effort of 20,100 lb. An anemometer was used for obtaining the velocity of the wind.

In conducting the tests the locomotives were run by the field containing the pans at four different speeds varying from a low speed to the maximum that could be obtained under each load hauled. Tests were made with the engine and caboose alone, and tests were then made for each increase in tonnage until the full tonnage was obtained. For each test the direction of the wind and its velocity, the temperature, the condition of the weather, the number of cars, the weight and speed of the train, the position of the reverse and throttle levers, the draft and the character of the smoke were taken.

Fifteen tests were made with the American type engine, a summary of the results being shown in Fig. 1, the chart showing the average weight of sparks caught in each pan for the tests made with the different tonnages. From this it will be seen that the greatest number of sparks fell within 50 ft. from the center of the track. No sparks were caught beyond 150 ft., and in only one test were there sufficient sparks caught at 150 ft. to weigh. It was also found that the quantity of sparks ejected was not materially affected by an increase of tonnage. It was evident,

however, that as the tonnage increased the range over which the sparks were spread increased. Of the total weight of sparks caught, 71 per cent was within 45 ft. of the center of the track and 85 per cent within 55 ft.

The tests with the switching locomotive were made in the same manner as those with the American type. Fig. 2 shows similarly the results obtained. These curves have the general characteristics of those illustrating the other tests. No sparks were caught further than 65 ft. from the track when the caboose alone was attached. With a full loading of 630 tons a comparatively large amount were caught at 150 ft., but at the next station beyond there was no trace found. Sixty-two per cent by weight of all the sparks caught from this locomotive was within 50 ft. of the center of the track, and 81 per cent was caught within 65 ft.

There were 613 sparks from both locomotives in all tests caught in the paraffine pans, that were warm enough to stick or to melt into the paraffine. Of these, 83 per cent were caught within 45 ft. of the center of the track, and 96 per cent within 65 ft. In Fig. 3 the total number of sparks that stuck in the paraffine for each locomotive is shown plotted against the distance from the center of the track.

One of the purposes of the test was to determine, if possible, to what extent the possibility of fire from locomotive sparks was influenced by the velocity of the wind, but as the wind velocity during these tests did not exceed nine miles an hour definite results were not obtained. It is intended, however, to continue the tests some time in the spring when the wind is much stronger.

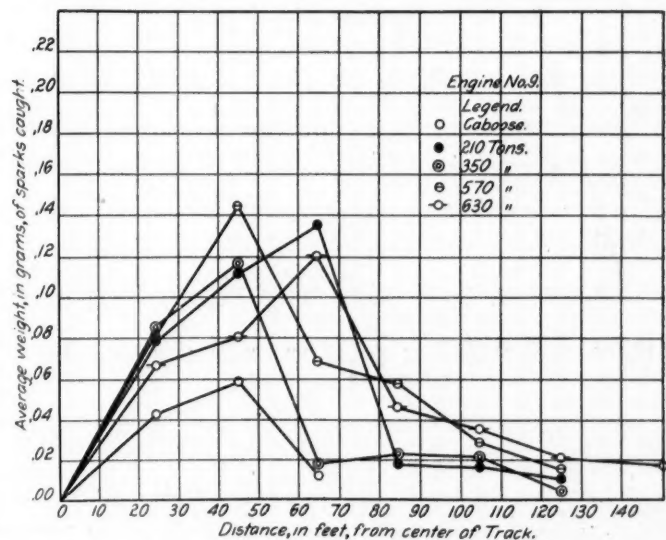


Fig. 2—Average Weight of Sparks Caught from the Switching Locomotive

From a study of the information obtained under these conditions no fixed law was found as to the influence of the wind on the sparks.

Paraffine and cotton fleece were used in the pans in order to determine as far as possible the temperature of the sparks when they reached the ground. The sparks sticking to the paraffine were closely studied and compared with similar sparks at known temperatures placed in paraffine in the laboratory, and in this way the sparks caught in the tests were assigned temperatures. Laboratory tests were made for the purpose of determining the temperature at which locomotive sparks of different sizes would set fire to various combustible materials and to obtain data whereby the temperature of the sparks falling in the paraffine pans in the

tests might be gaged. In preparation for this several hundred pounds of sparks were sifted. The sieves used were carefully made and were of  $\frac{5}{8}$ -in.,  $\frac{1}{2}$  in.,  $\frac{7}{16}$  in.,  $\frac{3}{8}$  in.,  $\frac{1}{4}$ -in. and  $\frac{3}{16}$ -in. mesh, the sparks being passed through the sieves in the order named. One or more of each of the several sizes of sparks was placed in a small crucible and heated in a furnace until a temperature of 100 deg. F. was reached, and for a few minutes thereafter to insure that the sparks were of an equal temperature. Then one spark of each size was dropped on each of the combustible substances prepared, namely, cotton fleece, dry grass, excelsior and paraffine, and was closely observed in order to discern what took place. These tests were repeated for all sizes of sparks and for all temperatures up to and including 1,800 deg. F., the increment of increase of temperature being 100 deg. F.

The conclusions drawn from these laboratory tests are: First, that it requires a spark larger than  $\frac{1}{4}$  in. at a temperature greater than 1,000 deg. F. to ignite so inflammable a material as cotton; second, it requires a spark larger than  $\frac{3}{8}$  in. at a temperature greater than 1,400 deg. F. to burn either excelsior or dry grass, and for the latter even higher temperatures may be required. From the information obtained in the laboratory tests with the paraffine pans, the 613 sparks that were hot enough to stick to the paraffine in the field were studied and only one gave evidence of having been at a temperature of 1,200 deg. F.; this spark was caught 25 ft. from the center of the track. Only three sparks were graded as having been 1,000 deg. F., and of all the sparks

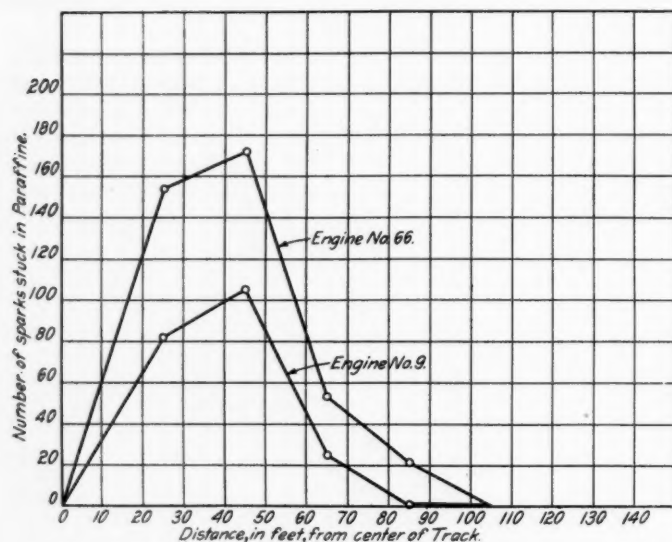


Fig. 3—Total Number of Sparks That Stuck in the Paraffine, for Both Locomotives

that were 800 deg. or more, there was only one that was caught in the pans as far away from the track as 85 ft. Of all the sparks graded as being 200 deg. F., and there were a large number, only two were found as far as 105 ft. from the center of the track. Out of the 32 tests with the two different locomotives worked at their greatest capacity and with the wind velocity as high as 8.7 miles per hour, only four sparks having a temperature of 1,000 deg. F. or over, were caught, and they fell within 65 ft. of the track. Even then it was shown by the laboratory tests that a spark must be hotter than 1,000 deg. F. to set fire to so combustible a material as cotton.

From these tests it was found that the greatest danger of fire from locomotive sparks is within 50 ft. from the center of the track; and that it is unlikely that any sparks over 1,200 or 1,300 deg. F. will reach the ground from a locomotive stack. For a locomotive spark  $\frac{3}{8}$  in. or less to set fire to so inflammable a material as cotton fleece it must reach the ground at a temperature of 1,300 deg. F. For excelsior the temperature must be 1,600 or 1,700 deg. F., and to set fire to dry grass it must be 1,700 to 1,800 deg. F. The largest sparks caught during the road tests were

less than  $\frac{3}{16}$  in. Professor Wallace stated that the subject had not been fully covered, and the influences of wind of higher velocity and of heavier working conditions are yet to be determined.

## LIMITING LENGTH OF TRAINS BY LAW\*

By M. W. POTTER

President of the Carolina, Clinchfield & Ohio

A bill before the South Carolina legislature makes it a misdemeanor to run trains containing more than fifty cars, whether loaded or empty. The Clinchfield Railway never could have been justified as a sound business proposition and never would have been built, as a fifty-car railroad. More than \$15,000,000 was expended to increase its capacity to upwards of 100-car trains. The application of a fifty-car limit would double operating costs and actually destroy at least \$15,000,000 of our investment. If adopted in South Carolina the bill would prevent construction of new high-class roads and the revision of present lines. The measure would be an impregnable barrier against the progressive development of the state and permanently prevent the lowering of rates. . . .

With the completion of the Clinchfield extension to Elkhorn City, Ky., shortly to be put into operation, our line, in connection with the lines north, will constitute a practically level railroad from an operating point of view. All that will then remain to give South Atlantic ports a line to the Middle West equal to or better than the lines from the northern ports will be new construction from the Clinchfield to Charleston, or a revision and improvement of the present lines. This subject is now receiving the consideration of the lines interested.

The enactment of the proposed measure by South Carolina would build up and strengthen the railways of other states at the expense of your own.

"While such measures are prompted by a desire to create more jobs, the promotion of safety is given as a pretext. The statistics of the lines handling long trains conclusively prove that operation with long trains is safer than with short. A given tonnage can be handled over a line in a given time with a few long trains with much less danger than with a greater number of short trains. The reason is obvious. . . . By handling a given tonnage in fifty-car trains, instead of 100-car trains, there is four times the danger of erroneous train orders and signals; four times the danger of switches being left open; four times the sudden jars and wear and tear; four times the danger of the flagman not properly warning approaching trains; four times the danger of congestion and collision, and four times the general complexity of operation.

Upon a hearing before the committee of the Virginia legislature, which last winter rejected a similar measure, statistics were furnished by the Norfolk & Western showing that the longer trains were the safer; and similar statements were presented by the Chesapeake & Ohio. It appeared that in the case of both these railroads the mere length of the train was negligible as a cause of accidents. The figures given as the actual experience on those railways harmonize with the universal experience of all railroads. The Clinchfield, which has been operating trains of from 60 to 135 cars in South Carolina for more than five years, has never seriously injured an operative in such service. We handle from 60 to 100 loads into Spartanburg and from 100 to 135 empties out.

Sound state policy would be to encourage development to the highest point of efficiency and the best possible service, with proper regulation of the compensation to be received for such service. The citizens of South Carolina should take this matter up as an important public question, which in its bearing upon the future of your state may, I believe, become as far reaching as any problem you have ever had.

\*From a letter printed in the Spartanburg (S. C.) Herald.



# National Association of Scale Experts' Convention

## Abstract of Papers Presented at the Eleventh Semi-Annual Meeting Held February 1-3, at Chicago, Ill.

The National Association of Scale Experts held its eleventh semi-annual meeting at the Fort Dearborn hotel, Chicago, Ill., on February 1-2-3, at which papers of interest to railroad men were read and discussed on the subjects of: Automatic Scales and Their Mechanical Construction, by F. E. Kaepfel, sales agent, Fairbanks, Morse & Company; Test of Railroad Track Scales, by D. J. McGrath, scale expert of the state of Minnesota; Board of Trade Weighing, by J. A. Schmitz, editor, Scale Journal, and Weighing and Recording of Weights, by L. M. Allen, district superintendent, Western Weighing & Inspection Bureau, Omaha, Neb.

On Tuesday morning the delegates visited the Fairbanks, Morse & Company shops, where the fitting and sealing of levers was demonstrated, returning in time for the association dinner at the Fort Dearborn hotel at 1 o'clock.

### FOUNDATION, CONSTRUCTION AND CARE OF TRACK SCALES

BY A. MALMSTROM

Chief Scale Inspector, Atchison, Topeka & Santa Fe.

There is an erroneous conception in regard to a track scale foundation. We usually call the square concrete box made to receive scale metals, structural steel or timbers, the foundation, whereas the real foundation is the underlying strata on which this concrete box is placed. In deciding upon the location of a scale, if rock is accessible within a reasonable depth a little additional expense and material or labor should not be spared to reach it. If rock, dry sand or gravel cannot be reached conveniently, artificial support must be secured by driving piling. It is impossible to issue any general rules in regard to the location or construction of foundations for track scales, for this must be left to the judgment of the engineering department and the scale experts to use.

For example, on the Santa Fe, nearly every kind of earth formation is found, including the damp and swampy condition on the gulf and Pacific coasts, the sandy and volcanic formation on the desert of Arizona, the black soil, clay and gumbo in the East, and the rocky formation in the mountains. In nearly every instance different treatment has to be resorted to.

In placing a track scale at San Francisco, where the foundation consisted of filled ground on sloping rock, 36 piling were driven to a depth of 60 ft. to reach the rock. Then a footing of concrete 3 ft. thick was built, in which was imbedded 1,625 lineal feet of light rails placed longitudinally and crosswise. The concrete box was then placed on this footing. Until about two years ago the scale had moved 4 in., but had maintained its compactness. In September, 1913, a slight quake jarred it out of level  $2\frac{1}{2}$  in., which condition was temporarily remedied by shimming, and later it was permanently remedied. In spite of all these difficulties the concrete box remained absolutely intact.

Another peculiar problem in the construction of a scale foundation was encountered at Galveston, where the bottom of the pit extended down 3 to 4 ft. below the level of the Gulf of Mexico. On one foundation 49 20-ft. piling were driven. A cement footing 10 in. thick was then placed on it, on which the outside form was built. During all this performance the water was seeping in as fast as a No. 8 Knowles steam pump could carry it away. To be able to work it was necessary to extend the excavation 2 ft. in every direction, forming a ditch from which the water could be pumped out. Five layers of tarred roofing paper were placed on top of the 10 in. footing and on the inside of the outside form each layer and its seams being glued with pitch tar. Then 10 in. more concrete was put in, after

which the inside form was built. The concrete was then carefully poured against the paper, so as not to penetrate it. After the inside form was removed a heavy coat of ironite and two  $\frac{1}{2}$  in. layers of water-proof plaster were applied. This plaster consisted of a mixture of 4 lb. of soft soap and 4 lb. of powdered lime to 50 gal. of water, to which was added enough clear sand and cement, in equal parts, to make it of proper consistency. The pit was then filled with water to prevent the plaster from setting too quickly and cracking. This foundation has proved very tight.

In selecting the location of a track scale the following conditions should receive careful consideration: A scale should be located where cars can be handled the cheapest, usually ahead of the lead on a separate track, it should be convenient to the building in which the weighmaster is located, and, if possible, it should be located where a good gravity drain can be placed. In the actual construction of the scale proper after the foundation is completed there are three principles that should be kept in mind—plumb, level and square. All connections must be plumb; frames, levers, beam and beam shelf must be level; and the coping, structural steel and frames must be square. The levers must also be square with each other.

After the scale is in operation frequent tests and inspections should be made. With proper management the scale men can be greatly assisted by the agent at track scale points. On the Santa Fe each general manager issues a rule to agents at such points, to make an end-to-end test once a week, and make reports thereof to the district scale inspector. By this arrangement the inspector can immediately tell if there is anything wrong with the scale on receiving the report of such tests.

In examining or testing a scale the bearings should not be disturbed unnecessarily by jacking up the scale girders, because in the wear of a scale each bearing seeks its own location, and if this natural position of the bearing is disturbed the scale will show a bad test immediately after such examination is made, while in a short time it will again seek its natural bearings. Of course in case of a breakdown or displacement of levers or bearings the jacking up of the weighing bridge cannot be avoided.

If grease is applied to the bearings it should not be disturbed and air should not be admitted to the steel after it is once covered. After the bearings are badly worn it will be shown by the application of the test car, which is run onto the scale from opposite directions. If there are unreasonable variations, and if each application shows different results and the scale does not readily respond to adjustment, then it is time that levers should be renewed or their metals repaired.

Cleanliness is the most essential detail in the care of the track scale and should be insisted upon at all times. The most effective scheme that we have yet found to prevent corrosion, and to lubricate and keep the bearings clean is to fill all loops and bearings with a grease that will maintain its body at all temperatures. The loops should be filled flush on both sides, covering the pivots completely without touching the body castings of the levers. Applied in this manner it will not impede the movement of the scale in the least, but will exclude all dampness, dirt, dust, corrosion or paint, besides acting as a lubricant. This method also eliminates the frequent scraping and repainting of metal pipes. The best preparation that we have found is No. 4 Mephisto brand Arctic cup grease. No grease should be applied to the bearings above the platform, because in the higher multiplication levers the grease will have some effect. On the shelf lever and beam pivots a very thin covering of "Vatardrip," or some other good rust preventive, should be applied.

## RECORDING WEIGHTS—CALLING EVERY WEIGHT BY ITS RIGHT NAME

By F. C. MAEGLEY

Assistant General Freight Agent, Atchison, Topeka & Santa Fe,  
Chicago, Ill.

One of the cardinal factors of commercial integrity is accuracy, and with respect to many commodities the scale and the recorded weight is the medium by which the prevailing measure of accuracy is determined. There are innumerable methods of recording weights, ranging from the sublime to the ridiculous. If any one underestimates the value of accurate means of recording weights, let him try to carry the information around in his mind for a time before recording it, and then by any practical method of testing his accuracy, see how many mistakes will result. One of the primary causes of weight discrepancies is the failure of the weigher to have or to utilize a reliable recording device. Many of the checking and recording systems have valuable safeguards against mental errors, or transposition of figures. Constant attention should be given to these features.

The record of first entry of weights recorded should be held sacred and permanent, and under no circumstances, should the weigher or other person destroy this record, however crude it may be, and substitute therefor copied scale tickets or copied weight records. The weigher should make suitable and complete notations on the original record, thereby establishing positive evidence of its integrity and completeness. In recording weights the record should show all circumstances which are essential to the full knowledge of the conditions and manner in which the weights were determined. This record should be so complete as to leave no room for doubt, and it should identify each weight with the particular transaction, car or vehicle to which it belongs. For example, at a recent annual convention of an extensive trade shipping organization a member took the floor and lamented the fact that public weighers' weights so frequently were unreliable because the weighers who were called upon to furnish affidavits of their weights could not say from their own knowledge whether the weights certified by them had reached the particular car or vehicle intended in every instance.

Every local agent should be made to become interested so that each in turn may labor with the customers of the railroad for weighing betterments. The strict attention to the detail of recording weights is one of the main reasons why the Chicago Board of Trade weighing department has obtained such high standing for the prevailing accuracy of its weights.

Simultaneously with the campaign for improved accuracy in the recording and transmission, and the application of weights there should be started another campaign entitled, "Calling Every Weight by Its Right Names." Whenever a weight is not called by its right name there is some underlying cause for hiding the identity of the weight, this cause being deception. If Bill Jones, the individual, weighs a commodity for purchase, sale or transportation, that weight should be known and designated as Bill Jones' weight. If Bill Jones, the employee of a firm or industry, performs a like weighing service such weight should be known as that firm's industry weight, per Bill Jones. If Bill Jones is hired as the accredited weigher of goods, sold, purchased or transported for individual firms or corporations, let that weight be designated as the weight of the institution for which Bill Jones is the bona fide employee. Or, if Bill Jones is employed by an impartial tally check weighing department, let such weight be known and designated as that impartial tally check weighing institution's weight, per Bill Jones, tally check-weighman; so that others at a distance interested in the particular transaction may be in a position to judge as to the character and quality of the weight recorded and transmitted.

Why should the weight of a shipper or receiver of freight by rail be designated as a railroad weighing association weight or as a board of trade weight, if in fact it is the weight of the shipper or receiver? Also, the record of first entry, and likewise any record that is transmitted or reported should show the original true and real author thereof and responsibility

therefor, and every weight should stand squarely upon its own bottom and not be allowed to sail under false colors.

In practically every commercial transaction there is an agreed controlling basis as between buyer and seller of commodities sold by weight. Either the seller's weight, the buyer's weight, or the weight of some weighing department is the one upon which the commodity is bought and sold. Where the seller parts with his commodity on the basis of the buyer's weight or the weight of others, he naturally is anxious to have the controlling weight basis protected by every reasonable safeguard. Where the transaction involves the commodity thus shipped the buyers and sellers are usually situated at considerable distances from one another so that they must, in a measure, depend upon such cooperation as may be reasonably employed to insure the accuracy and integrity of the service performed. Certain shipping organizations are now conducting a campaign calling upon their membership for closer attention to the scales used and a prompt written declaration or certificate of weights at the time cars are loaded, so that the same may be used by the destination agent when delivery is made and the controlling weight reported by the consignee. The importance of calling every weight by its right name cannot be too strongly emphasized.

## LOCOMOTIVE FEED WATER HEATING

In discussing the report on "Steam Locomotives of Today" at the recent meeting of the American Society of Mechanical Engineers, several references were made to feed water heating. An abstract of this part of the discussion follows:

DISCUSSION BY H. H. VAUGHAN

H. H. Vaughan, assistant to vice-president, Canadian Pacific, stated that considerable has already been heard as to the experiments made on feed water heating by Mr. Trevithick on the Egyptian railways, in which he used not only exhaust steam heaters, but waste-gas heaters in the front end. With the latter he has been able to put the water into the boiler at 230 deg. and obtain 22 per cent economy. In this country the Central Railroad of Georgia has done a little feed water heaters, as well as the New York Central, the Canadian Pacific, and the Central Railroad of New Jersey.

"On the Canadian Pacific we have been experimenting with feed water heating for six years. We have tried open heaters in a tank with fairly good satisfaction. We also applied exhaust steam injectors, and got fair results. We have since been advised by the manufacturers that our troubles were because of our having applied too large size an injector for ordinary work on the engine. However, I am of the opinion that while the exhaust steam injectors would work fairly well under certain conditions, yet there would be some difficulties where the amount of water consumed is large. We found on experiments with an open heater that the temperature obtained was due to the exhaust steam from the feed pump, so, assuming a temperature of 200 deg. in the feed water, it would really be the equivalent of 160 deg. when the water was put into the boiler by an injector with 100 per cent efficiency. By heating the water at the injector suction to 120 deg., we got 6 per cent economy, and used injectors as against 10 or 12 per cent economy with the feed water heater, and using a pump. We thought 6 or 7 per cent with the injector was preferable to 10 or 12 per cent with the pump, and we have been experimenting on that in recent years with reasonable results. Lately we have experimented with an ordinary closed feed water heater, and it is giving fair results.

"This is a subject which American railroad people have largely neglected. It has the advantage of not only saving in coal, but increasing the capacity of the boiler. In careful experiments we found an economy of 12 per cent in the use of the heater, and we feel that that justifies our going into the device more thoroughly. I feel that we will see feed water heating coming into larger use, not only with exhaust steam, but with waste gas."



DISCUSSION BY F. F. GAINES

F. F. Gaines, superintendent of motive power, Central of Georgia, stated in part: Feed water heating in this country is confined to a limited number of cases, and cannot be said to be generally recognized as a factor in fuel economy. Experiments made on several engines by the author show that about 10 per cent economy can be expected; there have been, however, offsetting difficulties in maintenance.

The feed water heater in question was made up of two elements. The first consisted of a pair of condensers in the form of long drums applied underneath the running boards. The steam from air pumps, boiler feed pumps, and some of the main exhaust was condensed in them and the heat taken up by the feed water. The second element consisted essentially of a double nest of tubes in the smokebox, similar to a Baldwin type superheater. The feed water from the tank was forced through the condensers and smokebox heater, and from the heater through the regular boiler checks to the boiler itself.

Some trouble was experienced with operation of the pump, and it was also found that the type of pump used was not altogether suitable for the purpose, wearing very rapidly and having considerable slippage. The smokebox heater tubes were objectionable from the standpoint of obstructing draft and filling up with soot and cinders between the tubes, also cutting out very rapidly by the action of the exhaust. There was a further objection due to the fact that the condensed steam from the air pumps and boiler pump exhaust was still at a temperature that, in cold weather, would give off considerable clouds of steam, and as this water had to be wasted, the result was a cloud of steam around the engine, which was objectionable because of obscuring the view of the engineer in looking back over the train.

These heaters were used some two or three years, however, and tests were made which showed them to have a fuel economy somewhere in the neighborhood of 10 per cent. On account of the mechanical difficulties mentioned they were finally abandoned, more especially in view of the fact that very much greater economy can be obtained by using the smokebox for superheating steam, and if this is done, this form of feed water heater, of course, must be abandoned. That eventually, however, we will succeed in developing a satisfactory type of feed water heater seems to me almost a certainty.

It would appear that the most feasible plan for such ultimate development would be a type of open feed water heater which would be located between the frames of the engine and underneath the boiler, which space is now available on account of the elimination of inside valve gear, using as before, the exhaust from the air pumps, boiler feed pumps and part of the main exhaust. In doing this, however, it is thought that ultimately, instead of using the present form of exhaust draft to effect combustion, with its consequent back pressure due to restriction of the nozzle, a form of forced draft of the blower type will be used. Under these conditions the exhaust openings from the cylinder to the atmosphere can be made without any restriction whatever and in this manner greatly reduce the back pressure, so much so that the steam required for operating the auxiliary and forced draft would use but a small proportion of the horsepower gained in so doing. Previous experiments would also indicate that a type of centrifugal pump would be much more effective and positive for boiler feeding than one of the reciprocating type used heretofore.

While American railroad practice is averse to adding any complicated apparatus to the locomotive, it seems that the demand for the utmost economy will eventually bring about a satisfactory method of feed water heating so that in connection with superheating, liberal firebox heating surface and possibly compounding we can obtain the maximum possible economy from the fuel used.

## NEW YORK CENTRAL AWARDED HARRIMAN SAFETY MEDAL

The American Museum of Safety held its annual exercises and award the museum's medals on Wednesday evening, February 10, at the United Engineering Societies building in New York City. On this occasion the E. H. Harriman memorial gold medal awarded annually to the American steam railroad which during the year has been the most successful in protecting the lives and health of its employees and of the public, was awarded to the New York Central for the record made during the fiscal year 1914 by the New York Central & Hudson River. This is the second annual award of the medal given by Mrs. E. H. Harriman, which was awarded last year to the Southern Pacific.

The medal was awarded on the decision of the committee on award, composed of Arthur Williams, president of the American Museum of Safety, chairman; E. E. Clark, member of the Interstate Commerce Commission; Charles P. Neill, formerly United States Commissioner of Labor; Dr. Alexander C. Humphreys, president of Stevens Institute of Technology, and Samuel O. Dunn, editor of the *Railway Age Gazette*.

The medal was received by A. H. Smith, president of the New York Central. The silver replica of the medal goes, not to an individual officer, but to a department, the operating department. The bronze copy of the gold medal goes to Dennis J. Cassin, a locomotive engineer, who was retired last September on a pension, after 53 years' service for the company. Mr. Cassin had been an engineer since 1867, and had run the most important trains. The management recommended him for this honor because of his excellent record, and of the intelligence and spirit with which for many years he has sought "safety first."

Nineteen railroads competed for the medal by sending to the committee their accident statistics for the fiscal year 1914. In making the award consideration was given to various factors, including the relation between the number of locomotive miles run and the number of accidents, the improvement in safety made during the year, the conditions under which traffic is handled, and any especial effort made to bring about improvements in safety, including physical improvements, such as block signals and the attention given to a "safety first" campaign. The greatest consideration was given to the relation between the number of locomotive miles run and the number of persons of all classes killed and injured, which were considered on the basis of a weighted scale, the greatest weight being given to passengers, and the least to trespassers. Great consideration was also given to the reduction shown during the year as compared with the previous year in the number of killed and injured, having in mind the relation between the reduction in the number of casualties and in the volume of traffic handled.

The New York Central & Hudson River, it was considered by the committee, made a most remarkable record, not only considered by itself, but especially in comparison with the results of the previous year. While there was an increase in the number of passengers carried one mile, and a reduction of only 5½ per cent in the total number of locomotive miles, the total reduction in fatalities from all causes was 68 per cent. The reduction in locomotive miles was attributable to the decrease in freight traffic. This road in the fiscal year 1914 carried a total of 1,983,885,428 passengers one mile, without a fatality to a passenger in a train accident. There were 12 fatalities to passengers in other than train accidents. In 1913 524 people were killed and 15,569 were injured, while in 1914 the number killed was reduced to 212 and the number of injured to 7,317. Moreover, there was a reduction both in fatalities and in casualties in every class of persons, passengers, employees, etc.

In making the award to the New York Central the various conditions under which its traffic is handled and the operating difficulties experienced by a road such as this, one of the greatest passenger carrying roads in the country, were taken into con-

sideration. The road has shown a steady decrease in casualties since the beginning of the safety first campaign in 1910. For the past four years there has been a continual reduction in fatal accidents to employees on duty, excluding industrial accidents. In 1911 the number was 165, in 1912, 154, in 1913, 140 and in 1914, 99. In 1914 no road trainman was killed in a train accident, whereas during the previous year 12 were killed in such accidents.

The list of roads which competed for the award is as follows: Arizona Eastern; Chesapeake & Ohio, including the Chesapeake & Ohio of Indiana; Corvallis & Eastern; Illinois Central; Long Island; New York Central & Hudson River; New York, Chicago & St. Louis; Queen & Crescent; Rock Island Lines; St. Louis Southwestern; St. Louis Southwestern of Texas; Southern Pacific Company; Sunset-Central Lines; Toledo, St. Louis & Western; Union Pacific System; Vandalia; Western Maryland; Oregon-Washington Railroad & Navigation Company; Oregon Short Line. An excellent showing was made by all of them. Of the 19 roads there were 16 that during the year did not kill a passenger in a train accident.

Other medal awards made at this time include the Scientific American medal for the most efficient safety device presented within a certain number of years and exhibited at the American Museum of Safety, awarded to the Shurloc Elevator Safety Company, Inc., New York; the Travelers' Insurance Company medal, awarded to the American employer that has achieved greatly in protecting the lives and limbs of workmen, awarded to the Commonwealth Edison Company of Chicago; the Louis Livingston Seaman medal, awarded for progress and achievement in the promotion of hygiene and the mitigation of occupational disease, awarded to Surgeon-General William C. Gorgas of the United States Army; and the Anthony N. Brady memorial medal, awarded to the American Electric Railway Company, which for the year of the award shall have done most to conserve the safety and health of the public and of its employees, awarded to the Boston Elevated Railway Company.

### "NATIONAL" TRAIN INDICATORS AT KANSAS CITY

Two of the train indicators in the new union station at Kansas City, a description of which was published in the *Railway Age Gazette*, October 30 last, page 799, are shown in Fig. 1. These two indicators show the next two trains that are to leave from track No. 6 and are placed, as shown, at the left and the right of the door leading from the main waiting room to the stairway by which passengers go down to platform No. 6.

These indicators were described in the *Railway Age Gazette*, February 14, 1913, page 296, in connection with the installation of three different designs of indicators in the Grand Central Terminal and the Pennsylvania stations in New York City. To the passenger these indicators are notable for the simplicity and good taste of their design and arrangement; and they commend themselves to the station man by reason of simplicity and ease of operation.

In the Kansas City station, where the architect has designed surroundings which afford a very effective setting to the indicators, the arrangement is different from that with the same style of indicator in New York, in that all of the operations of the attendant are performed on the back side, out of sight. At New York, the putting in of one train-notice in the place of another is done in full view of the passengers.

These indicators are made of steel and iron, copperplated. Those here shown are 32 in. wide and 6 ft. high. The lettering is painted on a curtain made of strong "leather-cloth" painted a flat black. This cloth is attached to a roller like that of a common window shade. The roller is inserted at the bottom of the indicator space, and, by means of chains and guides at the sides, the upper end of the curtain is pulled upward and fastened at the top, the whole change being made in less than half a

minute. With the flat color and the neat arrangement of all parts of the frame-work and apparatus, the lettering appears to the observer to have been painted on the solid wall. A curtain

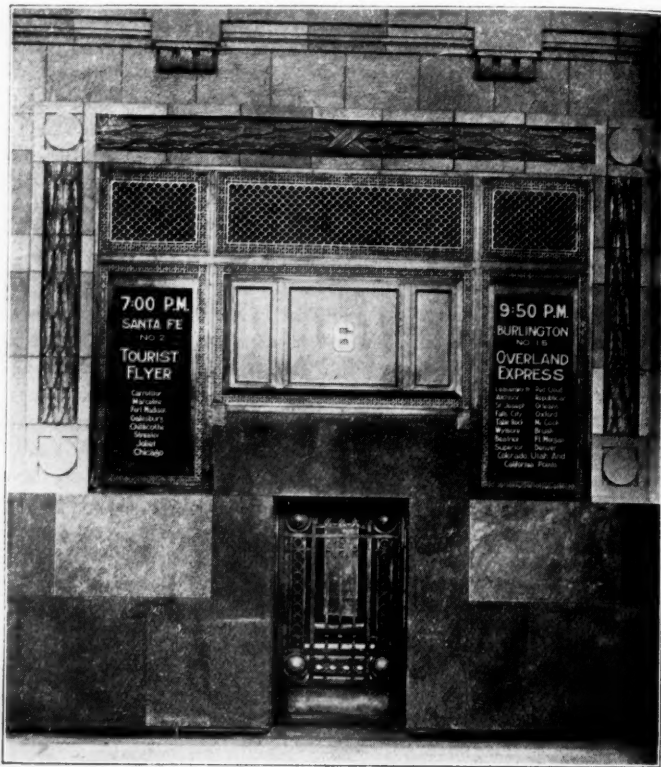


Fig. 1—Train Indicators in Kansas City Union Station

is prepared for each train and, when rolled up on its roller, is kept in a convenient drawer and, the sizes being uniform, a curtain can be displayed at any doorway in the station.

NO	DUE	EXPECTED	DOOR
<b>FRISCO</b>			
104	7:10 AM	7:10 AM	A
112	7:30 AM	ON TIME	A
<b>M.K.&amp;T.</b>			
82	7:30 AM	ON TIME	A
<b>K.C. SOUTHERN</b>			
18	7:34 AM	SEE SPECIAL BULLETIN	
<b>CHICAGO &amp; ALTON</b>			
83	7:42 AM	8:35 AM	A
9	8:00 AM	ON TIME	A
<b>GREAT WESTERN</b>			
8	7:48 AM	ON TIME	A
<b>WABASH</b>			
7	7:54 AM	ON TIME	A
<b>C.M. &amp; ST. P.</b>			
8	8:00 AM	ON TIME	A
<b>MISSOURI PACIFIC</b>			
201	8:00 AM	ON TIME	A
<b>SANTA FE</b>			
8	8:00 AM	8:40 AM	A
204	8:45 AM	ON TIME	A
18	9:00 AM	ON TIME	A
12	9:50 AM	ANNULLED	A
<b>ROCK ISLAND</b>			
24	8:25 AM	ON TIME	A
32	9:05 AM	8:25 AM	A
87	7:40 AM	SEE SPECIAL BULLETIN	
<b>BURLINGTON</b>			
22	7:00 AM	ON TIME	A
15	7:55 AM	7:00 AM	A
44	7:48 AM	ON TIME	A
3	8:00 AM	ANNULLED	A
<b>UNION PACIFIC</b>			
10	7:00 AM	ON TIME	A

Fig. 2—Bulletin of Arriving Trains, Kansas City Union Station

In connection with these indicators for departing trains, the reader will be interested in the bulletin which is provided in the Kansas City station for arriving trains, shown in Fig. 2. This



bulletin is posted above one of the doors at the side of the grand lobby, and is hung on hinges so that it can be swung around into the station master's office, where the changes in announcements are made. Each half of the bulletin is 27 in. wide and 65 in. high.

This bulletin is made up of slats about 1 1/4 in. wide covered with white enamel metal. These are fastened into wooden frames. The information shown on the bulletin is made up of separate letters and characters, printed in black on the same white enamel metal; the tops of the characters being bent in the form of a hook to enable them to be hung on the slats. Certain phrases, such as "ON TIME," "ANNULLED," etc., are made in one piece. Thus any changes desired can be made on any slat, and any character can be used.

It has been found that with the large number of trains and the number of changes consequently required, the use of separate characters takes up a good deal of time, and logotypes will probably be made, showing train number and arriving time on one piece of metal. The names of the roads as shown in the picture are made in logotype style. Each of these covers two

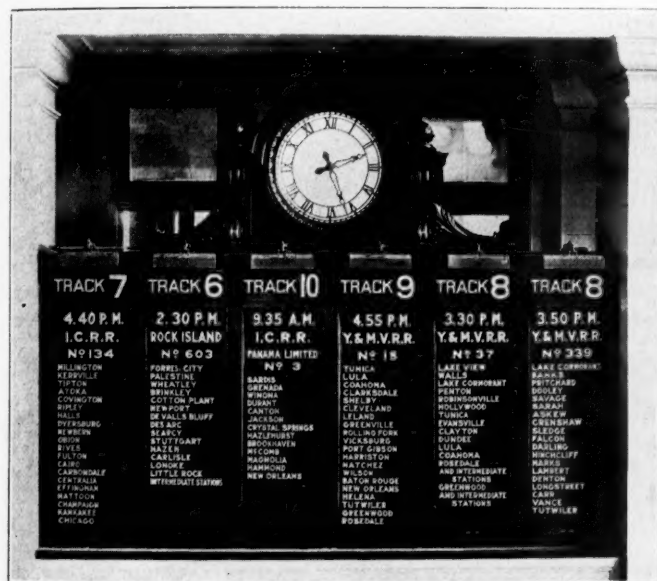


Fig. 3—Train Indicators in Memphis Union Station

slats. Its position on the board can be changed readily in case more room is needed for that particular road.

This device is patented and was furnished by the Commercial Sign Company of Ashtabula, Ohio.

Fig. 3 shows the arrangement of "National" indicators in the Union station at Memphis, Tenn., which differs from those at both New York and at Kansas City, in that the indicators for six different trains are grouped in one place; that is, on a balcony above the main doorway leading from the main waiting room to the train-concourse. The clock placed above the indicators serves to draw attention to this side of the room, and a passenger anywhere in the waiting room can thus at a glance secure all of the principal items of information about his train in this one place; and also inform himself concerning all of the trains scheduled to depart within the next hour or two. Each of the six indicators can be used in connection with any one of the platform tracks, the numbers at the top being changeable. These Memphis indicators are narrower than those at Kansas City, being 24 in. wide. They are operated from the rear, the same as those before described.

The indicators are made by the National Indicator Company, Long Island, N. Y. The same company has installed indicators in the Camden station, Baltimore; Windsor street (Canadian Pacific), Montreal; Minneapolis (Great Northern); Detroit Union station; Central of New Jersey terminal, Jersey City, and Long Island Railroad, Brooklyn, N. Y.

## LOCOMOTIVE FRONT ENDS AND DRAFT APPLIANCES

The following extracts are taken from the discussion of the report of the railroad committee of the American Society of Mechanical Engineers, presented at the annual meeting in New York, December 2, 1914:

DISCUSSION BY C. D. YOUNG

C. D. Young, engineer of tests, Pennsylvania Railroad, said in part:

*Front End Design.*—The general use of the Schmidt type of superheater has had an influence in effecting a certain uniformity in the arrangement of the smokebox. The one-piece lift pipe connected directly to the outside stack forms a very desirable and simple arrangement and requires a short exhaust column so that the advantage of a long stack may be obtained. The use of the petticoat pipe, with its adjustable features, is not so desirable as the internal single lift pipe, as the adjustable features are a source of annoyance in that people not properly qualified to make the adjustments are continually tampering with the arrangement, which results in an improper draft in the front end. It is most desirable that the gases have a free passage through the smokebox, and all points of possible restriction between the tube sheet and stack should be carefully investigated as to their areas. Care should be taken to provide a passage through the superheater damper which is equal, at least, to the area of the boiler and superheater tube outlets above the damper.

The use of a damper in connection with the superheater should be optional. On railroads where there is little or no drifting, there would seem to be no necessity for a damper. However, where a moderate amount of drifting is done, or where the locomotives are interchanged between divisions with low and moderate grades and others with heavy grades requiring a large amount of drifting, the automatic damper is a most essential feature for the protection of the superheater unit elements.

There has been a tendency of late to use exhaust nozzles having other than circular openings. The plain circular nozzle forms a steam jet which is too nearly cylindrical, or the shape of the stack, and the use of such a shape as the rectangular appears to break up the continuity or the form of the jet and cause it to draw out a larger volume of gases. Both rectangular nozzles and nozzles of the dumb-bell shape have been used with success, and with an increase in evaporation over that with the circular form. There has recently been developed on our locomotive testing plant a nozzle having four internal projections which appears to be more satisfactory than some of the irregularly formed nozzles. With these nozzles, having other than a circular outlet, an increase in the evaporative capacity of the boiler or from 15 to 25 per cent has been obtained and in recent tests on a large Pacific type locomotive a nozzle with four internal projections has given a maximum capacity in equivalent evaporation from and at 212 deg. of 87,414 lb. per hour. In the locomotive in question, this is an evaporation of 18.0 lb. of water per square foot of heating surface per hour and with this quantity of steam an indicated horsepower of 3,184 was obtained; whereas, the circular nozzle on this same locomotive developed a maximum equivalent evaporation of but 62,719 lb. of water per hour, resulting in an indicated horsepower of 2,501. It should be understood that no change was made in the locomotive other than in the exhaust tip.

*Ashpan Air Inlets.*—It has been the practice on the Pennsylvania to require that the air openings into the ashpan be at least 15 per cent of the area of the grate, and when the openings are of this size, the ashpan vacuum will be considerably less than one inch of water at the maximum evaporative rates. We have found, however, in the case of some switching locomotives, that this area of 15 per cent of the grate

area has been too large for the requirements of their service and to provide for this condition upon shifting locomotives, ashpan dampers have been installed along the air inlets at the mud ring. This arrangement very nicely takes care of these locomotives, which stand a great deal of the time, and if the air inlets in the ashpan were not reduced, it would be difficult for the firemen to prevent a large amount of steam from escaping from the safety valves.

#### DISCUSSION BY C. E. CHAMBERS

C. E. Chambers, superintendent of motive power, Central Railroad of New Jersey, said in part:

*Locomotive Front Ends.*—I presume there is no part of a locomotive that has had as much experimenting done on it as the front-end. We have had long and short stacks, rectangular and oblique, and single and double nozzles. Personally I think the single type exhaust nozzle will give satisfaction if other things are right. The height of the exhaust pipe should be not more than one-quarter to one-third of the diameter of the smokebox.

The netting arrangement does not make much difference. The arrangement of the diaphragm in the front end has a lot to do with the cleaning of the front end. It should be kept 6 to 9 in. away from the sheet to give a clearance.

Two or three years ago we had a new type of locomotive which gave us some trouble. After a number of trials of various expedients it occurred to me that the stack might be too small, so I took up with the locomotive builders the question of the relation of the diameter of the stack to the diameter of the cylinder, and it was admitted by them that the stack was smaller than it should be. We increased the diameter from 15 in. to 18 in. at the choke. We had perhaps one hundred or more engines with the same size stack, and about the same cylinder volume, but not in the same kind of service, so that they did not give us much trouble. But after making these changes on this particular type we made the change on the other engines and found a great difference, including a decreased consumption of coal.

One small improvement we have made in smokebox fronts where there is trouble from overheating is the placing of a liner about 4 or 5 in. away from the smokebox door, and filling the space with asbestos. This did away entirely with the difficulties from overheating.

#### ANTI-FULL-CREW LAW CAMPAIGN

The Pennsylvania, the Philadelphia & Reading, the Baltimore & Ohio, and ten other railroads in Pennsylvania and New Jersey have appointed a committee to make a comprehensive appeal to the public, to repeal the "full crew" laws. This is a problem in the solution of which the public is vitally interested, and it is proposed frankly to present all the facts, coupled with plain statements as to exactly what the railroads feel to be right, and the reasons therefor. The railroads recognize the fact that the interests of the public stand superior to those of either the corporations or their employees, and they feel that the public, by its greater interest, may be trusted to exert its dominating influence for what is best.

Statements are being prepared and will soon be given wide publicity. Space will be taken in daily and weekly newspapers in Pennsylvania and New Jersey, and the whole proposition will be put squarely before the people. The preliminary statement says:

"In no sense do the railroads war upon their trainmen. This law forces waste—not less than \$1,500,000 a year in Pennsylvania alone. It means in all such cases employment without service. That is a defiance of economic law. It makes a proposition which organized labor hurts itself in upholding. It throws an improper cost upon the railroads. This ultimately rests upon the public as a burden and makes a charge which transportation service should not be called upon to bear, be-

cause it is productive of nothing good, neither in improved service nor increased operating safety. On the contrary, it makes it impossible for the railroads to do many things for the public which the money now so wasted could be expended for.

"If there shall be evidence that without such laws the railroads would under-man trains, to the hardship of employees or the detriment of the public; or that the present public service acts do not give to the commissions ample powers to determine what crews are necessary on different trains and to compel the railroads to man trains as ordered, we will support such amendments to the present acts as may be necessary to give such assurance."

This is signed by Samuel Rea, president of the Pennsylvania; Theodore Voorhees, president of the Philadelphia & Reading, and Daniel Willard, president of the Baltimore & Ohio, as a committee for the thirteen roads.

A committee of subordinate officers has been appointed to take charge of the work, of which R. L. O'Donnel, general superintendent of the Pennsylvania, is chairman. The other members are: C. H. Ewing, general superintendent, Philadelphia & Reading; F. Hartenstein, assistant to general manager, Lehigh Valley; Robert Finney, general agent, Baltimore & Ohio, and J. S. Fisher, solicitor, New York Central. Other roads represented are the Erie, the Lackawanna, the Delaware & Hudson, the Buffalo, Rochester & Pittsburgh, the Pittsburgh, Summer-ville & Clarion, and the Cumberland Valley.

#### ADJUSTABLE PNEUMATIC FIRE DOOR PEDAL

An adjustable operating pedal for use in connection with pneumatic fire doors, which has recently been developed by the Franklin Railway Supply Company, 30 Church street, New York, is shown in the illustrations. The tread is mounted in a hanger



Adjustable Pedal Attached to the Franklin Butterfly Door

in which it has a sliding adjustment that permits it to be located at a distance from the boiler head suitable for either a tall or a short fireman. The adjustment may also be changed to suit the



position of the fireman as the coal is used back from the coal gates. A lock is provided which holds it in any position. The hanger is mounted on a rigid hanger bolt about which it may be swung in either direction by raising it to clear the teeth in the face of a shoulder on the bolt. When swung to the desired position it is secured by dropping it into place, the teeth in the hanger engaging those in the shoulder. The hanger may be adjusted vertically so that in case of a warped deck the treads may be raised to provide the proper clearance without the neces-



Adjustable Pedal Removed from the Fire Door

sity of taking the hanger to the blacksmith shop. This adjustment is made by turning the rigid hanger bolt, which is threaded in the fulcrum. One side of the fulcrum is slotted and when the proper adjustment has been made it may be locked in place by means of a bolt provided for that purpose.

## AN INTERVIEW WITH DANIEL WILLARD

[New York Times]

"What is the problem that this company has to face? What is your chief apprehension as to the future?" Daniel Willard was asked.

"As I view the matter," replied Mr. Willard, "the most serious problem now confronting the railroads is the demand—present and prospective—of labor. The two decisions of the Interstate Commerce Commission in the eastern rate case may be said, when taken as a whole, to comprise a bill of rights for the railroads in so far as the relations between the railroad and the public are concerned, and I for one believe that if the principles recognized and outlined in the decisions above referred to are fairly carried out the future of the railroads from that point of view is more encouraging than it has been in many years past.

"Unfortunately, the same cannot be said with reference to the labor question. The arbitrators who in 1912 passed upon the demands of the locomotive engineers employed by the eastern railroads said that owing to the fact that a railroad was a semi-public institution the employees become by virtue of that fact semi-public servants, and as such it was the duty of the public to see, first of all, that they were fairly paid and properly treated; but also by virtue of that same fact railway employees were under certain obligations to the public which must be recognized; that their service was affected by a public use.

"Unfortunately, railway employees, while willing to avail themselves of the privileges that they are rightfully entitled to as semi-public servants, have seemed to forget at times the obligations which they owe to the same public, because when strikes have been threatened or actually brought about the public is always the chief sufferer. In the past the public generally, not recognizing the relationship which must exist between railroad rates and railroad expenditures, has to a large extent occupied the position of an indifferent observer when wage controversies between railroads and their employees were going on.

"Now that it is more clearly recognized that in the end the public, by means of freight charges and passenger rates, must pay all the costs of railroad operation, including wages, it is to be hoped that the same public will take a keener and more intelligent interest in this matter, because in the end such questions under the existing order of things will usually be settled by arbitration, and arbitration generally reflects to a very large extent the existing public opinion. I repeat, this question of the demands of organized labor is the thing that gives ground for most apprehension as to the future."

## CO-OPERATION WITH THE TRAFFIC DEPARTMENT

J. W. Roberts, recently superintendent of car service of the Vandalia, but now general superintendent of passenger transportation of the Pennsylvania Lines West of Pittsburgh, has for some time been practicing a plan for securing the full co-operation of employees in his department with the traffic department of the road. First he called a meeting of the employees of his department for the purpose of discussing the subject, "How can the Individual Employees of This Office Assist the Soliciting Forces of the Freight and Passenger Traffic Department in Increasing Freight and Passenger Revenues of the Vandalia Railroad?" at which he urged the importance of the cultivation by individual employees of the faculty of being constantly on the alert for information which may be utilized profitably for the company, the cultivation of loyalty or a desire on the part of employees to offer a word of recommendation in favor of the railroad when conditions seem to justify that act, and cultivation of interest on the part of members of the families, other relatives and friends of the employees and the employer.

Following the meeting a circular letter was addressed to the heads of sub-departments calling attention to the fact that through association with relatives, friends and acquaintances who are not connected with the railroad company, employees of the department frequently receive information relative to prospective vacation and business trips to points on or reached by the Vandalia Railroad and the Pennsylvania lines, and with reference to prospective shipments of freight inbound or outbound.

Each man addressed was urged to discuss this matter with the men in his respective sub-department, and to urge them to communicate any information of this character to the proper representative of the department directly concerned. In another circular letter Mr. Roberts said that the results of the activity of employees along the line of the suggestions made had been made apparent from time to time, indicating a gratifying interest in the welfare of the company, and while thanking the men for their efforts he urged them to continue to look out for any opportunities for co-operation with the traffic department. "Thirty employees," he said, "with an average family of three persons, and a relationship or close friendship extending to eight to ten additional persons, constitutes quite an important adjunct to a traffic soliciting organization. I am sure that all will join heartily in contributing in the manner outlined their effort toward increasing both passenger and freight revenues."

## General News Department

E. B. Roberts, smoke inspector of the city of Cleveland, has submitted a report showing that the density of locomotive smoke during the second half of 1914 decreased 79 per cent, as compared with the second half of 1912.

The railroads entering the Union station at Cincinnati were forced to abandon the station and seek temporary locations on higher ground on Saturday, February 6, because of high water in the Ohio river which flooded the tracks in the station. The flood reached the stage of 55.4 ft. on that day.

The eleventh annual convention of the American Concrete Institute was held at the Auditorium hotel, Chicago, this week, beginning on Tuesday, in connection with the eighth annual Chicago Cement Show, held at the Coliseum, beginning on Wednesday, which will continue until Wednesday of next week.

The Chicago & Alton has reached an agreement with a committee representing its trainmen, providing for increases in pay for flagmen and train baggagemen, and a number of changes in working conditions, including payment for terminal overtime, and extra payments for incidental work outside of the regular routine.

The Southern Railway has sent a statement of its receipts and expenses for the last half year not only to the railroad and financial papers, but also to daily papers throughout the southern states, and expresses the intention of sending such statements to the press generally hereafter. As railway earnings are a good barometer of business conditions, it is believed that the figures will be of interest to the people generally.

The lower house of the New Mexico legislature on February 4 passed, by a vote of 37 to 8, a bill limiting passenger fares throughout the state to three cents a mile. The leader of the Republican side of the house declared that the bill had been rushed through without a hearing and without investigation, and in the face of the fact that a day had been set, in the near future, for the discussion of another bill on the same subject. The present rate is four cents a mile generally throughout the state.

In the federal court at Pittsburgh, Pa., fines for violation of the hours-of-service law aggregating \$9,300 have been imposed by Judge Charles P. Orr on the Pennsylvania Railroad and the Pennsylvania Lines West of Pittsburgh. Three employees of the Pennsylvania Railroad, at Oil City, were fined \$200 each on charges of having falsified the record of the time certain trainmen had worked. The excuse offered in certain cases by the railroad companies for slow time, that the engines did not make steam, was controverted by the statement that the engines had been in poor condition for some time previous to the violation.

Mr. Foley, superintendent of telegraph of the Delaware, Lackawanna & Western, reports that his wireless telephone apparatus, which has been in experimental use on an express train of that road for several months past, has been so far perfected that conversation was carried on, this week, between a man on the moving train and the operator at a station, 26 miles distant. The sending of dots and dashes by the wireless apparatus is now carried on between this train and four stations; namely, Hoboken, Scranton, Binghamton and Buffalo.

A press despatch from San Francisco, February 10, reports that a wireless telephone invented by H. P. Dwyer, has carried the human voice a distance of 721 miles; it was from the United States government radio station at Mare Island, Cal., to the government radio station at Tatoosh, Cape Flattery, on the coast of Washington. The voice was also heard at Bremerton, a distance of 560 miles, at Point Arguello, at Burck, and by the government radio operator at San Diego, Cal.

Mass-meetings of the employees of the St. Louis & San Francisco were held on Saturday and Sunday, February 6 and 7, at Springfield, Mo., attended by more than 3,000 employees living at Springfield, and between 5,000 and 6,000 employees from other

points on the line in Missouri, for the purpose of enlisting the efforts of the employees in a campaign to impress upon the legislature of Missouri the need of a three-cent passenger fare and higher freight rates in the state which will represent in part a restoration of rates which were reduced by the action of the state legislature a few years ago. It is proposed that all employees interview business men and manufacturers in their territory and urge them to get up petitions or write letters to the members of the legislature, asking them to approve a measure which will allow the railroads to charge a three-cent passenger fare and higher freight rates.

Owen Callan, known to the railroads as a clever "personal injury" faker, has been sentenced to six months in jail in Chemung county, New York, after pleading guilty to charges based on evidence given by the Lehigh Valley and the Pennsylvania. Since the date of his arrest, December 24, the railroads have had a chance to compare notes, and it has been found that no less than fifteen roads have been victimized by claims for alleged injuries sustained by Callan under various aliases. On some railroads he has repeated two or three times, collecting from \$125 to \$1,000 per "injury." But his last escapade, in tripping over a carpet in a Lehigh Valley coach, while in the station at Ithaca, from which he developed a hemorrhage, a broken arm and several other injuries, proved to be his Waterloo. It was while filing this claim that he was recognized and apprehended on a warrant sworn out by the Pennsylvania Railroad.

The Illinois State Civil Service Commission has announced that examinations will be held at an early date for the following positions to be filled in the accounting and engineering departments of the Illinois Public Utilities Commission: Accounting service—Transportation rate expert, rank 3, \$300 to \$375 a month; transportation rate expert, rank 2, \$135 to \$250; accountant, rank 2, \$200 to \$250; utilities statistician, rank 2, \$175 to \$250; tariff clerk (examination March 6), \$100 to \$125; accountant, rank 1, \$125 to \$175; utilities rate expert, \$125 to \$175; utilities statistician, rank 1, \$100 to \$150.

Engineering service:—Assistant chief utilities engineer, \$300 to \$375 a month; gas engineer, \$250 to \$333; railroad engineer, \$250 to \$333; electrical engineer, \$200 to \$300; telephone engineer, \$200 to \$300; mechanical engineer, \$160 to \$250; service engineer, \$200 to \$300; assistant railroad engineer, \$150 to \$200; case man, \$125 to \$150; assistant utilities engineer, \$90 to \$125; service inspector, \$90 to \$125; utilities investigator, \$100 to \$150; draftsman (examination March 6), \$75 to \$100.

### Railroad Men Needed by the State

W. W. Atterbury, vice-president of the Pennsylvania Railroad, in an address delivered this week before the Philadelphia Chamber of Commerce exhorted railroad officers to co-operate in making governmental regulation a continued benefit to the railroads and to the community. He said, in part:

"Regulation has largely confined itself to correcting abuses. The evils were obvious, but we have allowed ourselves to think of them so much that we have forgotten about the transcendent merits of the regulation as a whole. We have been devoting so much attention to killing the weeds in our transportation garden that we have neglected the very important duty of cultivating and strengthening the growth of the healthy and useful plants. The great transportation machine of this country was and is sound. It needs continued regulation, but the regulation must be competent and sympathetic. . . . My suggestion is that a minority of the railroad commissioners of the states and nation should consist of men trained in the practical conduct of railroad affairs. All appointments should be for life or during good behavior; the salaries should be such as to attract the ablest brains in the country; and these positions should be surrounded with such prestige and honor that any citizen would feel that he could serve his country and his fellow man in no more exalted capacity than in representing the people in pro-



moting, encouraging and regulating the development of its transportation agencies. The country and its commerce cannot progress while the railroads are weak."

#### Summary of Revenues and Expenses of Large Steam Roads

The following figures were compiled by the Interstate Commerce Commission from monthly reports of operating revenues and expenses of large steam roads for the month of November, 1914. No reports are included for roads whose operating revenues for the year ended June 30, 1914, did not reach \$1,000,000. The figures are compiled as rendered and should not be considered final, inasmuch as scrutiny of the reports may lead to their modification before acceptance.

specifications were determined by S. Matsuno, chief of the motive power section of the Japanese railways, but the designer was allowed to use his own judgment in the choice of the car design, the type of equipment and the details. The car was designed to measure and to record data needed in making tests to determine train resistance and locomotive performance on steam roads. It is equipped to record drawbar pull, drawbar work, time, distance traveled, position of mile-posts and stations, the direction and velocity of the wind with respect to the car, the vacuum in the brake cylinders and, if desired, the position of the reverse lever, throttle, etc.

The car is 47 ft. 10 in. long over the buffers, 8 ft. 6 in. wide over-all and 12 ft. high. It has a steel underframe, a wood body, and the interior finish is of quartered oak. It is equipped for 3

#### FOR THE MONTH OF NOVEMBER

Item	United States			Eastern District			Southern District			Western District		
	Amount	Per mile of road operated		Amount	Per mile of road operated		Amount	Per mile of road operated		Amount	Per mile of road operated	
		1914	1913		1914	1913		1914	1913		1914	1913
Average number of miles operated	228,460.87	...	...	58,755.04	...	...	42,313.29	...	...	127,392.54	...	...
<b>Revenues:</b>												
Freight .....	\$163,550,041	\$716	\$830	\$69,310,170	\$1,179	\$1,355	\$24,291,766	\$574	\$721	\$69,948,108	\$549	\$621
Passenger .....	48,398,199	212	243	21,076,828	359	392	6,537,176	155	190	20,764,105	163	191
Mail .....	4,748,664	21	20	1,731,257	29	29	626,467	15	15	2,390,940	18	17
Express .....	5,826,524	25	30	2,689,262	46	53	831,763	20	25	2,305,499	18	21
All other transportation .....	6,554,277	28	33	3,626,128	62	69	511,884	12	16	2,416,265	19	22
Incidental .....	4,535,748	20	22	2,357,296	40	43	560,059	13	16	1,618,393	13	14
Joint Facility—Cr. ....	305,461	1	1	144,813	2	2	55,410	1	1	105,238	1	...
Joint Facility—Dr. ....	106,485	...	...	63,717	1	1	11,297	...	...	31,471	...	...
Railway operating revenues .....	\$233,812,429	\$1,023	\$1,180	\$100,872,037	\$1,716	\$1,949	\$33,403,228	\$790	\$985	\$99,537,164	\$781	\$886
<b>Expenses:</b>												
Maint. of way and structures .....	\$28,997,413	\$127	\$149	\$12,452,819	\$212	\$256	\$4,535,761	\$107	\$128	\$12,008,833	\$94	\$106
Maintenance of equipment .....	40,614,349	178	205	19,363,592	330	384	6,330,427	150	178	14,920,330	117	130
Traffic .....	4,942,556	21	24	1,921,774	33	37	934,141	22	22	2,086,641	17	18
Transportation .....	85,433,980	374	430	39,684,544	675	776	12,048,472	285	337	33,700,964	265	300
Miscellaneous operations .....	1,825,130	8	9	857,648	14	16	169,115	4	5	798,367	6	8
General .....	6,101,282	27	27	2,541,288	43	43	1,000,782	24	24	2,559,212	20	21
Transportat'n for Investm't—Cr. ....	689,890	3	1	73,403	1	...	116,646	3	...	499,841	4	3
Railway operating expenses .....	\$167,224,820	\$732	\$844	\$76,748,262	\$1,306	\$1,516	\$24,902,052	\$589	\$694	\$65,574,506	\$515	\$580
Net revenue from railway operations .....	\$66,587,609	\$291	\$336	\$24,123,775	\$410	\$433	\$8,501,176	\$201	\$291	\$33,962,658	\$266	\$306
Railway tax accruals .....	\$11,143,626	\$49	\$52	\$4,698,824	\$80	\$86	\$1,540,608	\$37	\$37	\$4,904,194	\$38	\$41
Uncollectible railway revenues .....	35,565	...	...	17,133	...	...	7,669	...	...	10,763	...	...
Railway operating income .....	\$55,408,418	\$242	\$284	\$19,407,818	\$330	\$347	\$6,952,899	\$164	\$254	\$29,047,701	\$228	\$265

\* Includes \$1 unclassified. † Includes \$7 unclassified. ‡ Includes \$4 unclassified.

#### FOR THE FIVE MONTHS ENDING WITH NOVEMBER

Item	1914	1914	1913	1914	1914	1913	1914	1914	1913	1914	1914	1913
	228,138.97	...	...	58,736.31	...	...	42,268.13	...	...	127,134.53	...	...
<b>Revenues:</b>												
Freight .....	\$863,225,289	\$3,871	\$4,203	\$381,746,239	\$6,499	\$7,104	\$128,933,059	\$3,050	\$3,390	\$372,545,991	\$2,930	\$3,116
Passenger .....	293,851,233	1,288	1,424	130,526,699	2,222	2,403	38,648,080	914	1,022	124,676,454	981	1,100
Mail .....	23,784,839	104	93	8,663,023	148	144	3,135,388	74	73	11,986,428	94	86
Express .....	29,015,514	127	143	13,056,323	222	255	4,211,385	100	107	11,747,806	93	103
All other transportation .....	36,862,755	162	172	20,604,467	351	361	2,894,299	68	78	13,364,049	105	115
Incidental .....	25,634,434	112	120	13,396,325	228	235	2,914,613	69	78	9,323,496	73	80
Joint Facility—Cr. ....	1,561,667	7	7	711,575	12	11	294,486	7	7	555,606	4	4
Joint Facility—Dr. ....	544,357	2	2	349,010	6	5	64,482	1	1	130,865	1	1
Railway operating revenues .....	\$1,293,391,374	\$5,669	\$6,174	\$568,356,581	\$9,676	\$10,542	\$180,966,828	\$4,281	\$4,754	\$544,068,965	\$4,279	\$4,604
<b>Expenses:</b>												
Maint. of way and structures .....	\$167,340,687	\$734	\$838	\$69,586,951	\$1,185	\$1,425	\$26,016,262	\$616	\$660	\$71,746,474	\$564	\$623
Maintenance of equipment .....	216,558,025	949	1,032	100,468,722	1,710	1,910	36,072,814	853	895	80,016,489	629	667
Traffic .....	24,720,130	108	121	9,376,647	160	188	4,691,771	111	109	10,651,712	84	92
Transportation .....	436,811,277	1,915	2,104	203,198,278	3,459	3,842	62,651,216	1,482	1,608	170,961,783	1,345	1,456
Miscellaneous operations .....	10,056,813	44	50	4,701,225	80	83	903,501	21	23	4,452,087	35	43
General .....	30,431,776	133	135	12,792,562	218	217	4,962,150	118	119	12,677,064	100	103
Transportat'n for Investm't—Cr. ....	3,134,786	14	8	284,960	5	...	556,152	13	1	2,293,674	18	13
Railway operating expenses .....	\$882,792,922	\$3,869	\$4,278	\$399,839,425	\$6,807	\$7,688	\$134,741,562	\$3,188	\$3,413	\$348,211,935	\$2,739	\$2,971
Net revenue from railway operations .....	\$410,598,452	\$1,800	\$1,896	\$168,516,156	\$2,869	\$2,654	\$46,225,266	\$1,093	\$1,341	\$195,857,030	\$1,540	\$1,633
Railway tax accruals .....	\$56,779,542	\$249	\$250	\$23,440,941	\$399	\$403	\$7,794,749	\$184	\$183	\$25,543,852	\$201	\$201
Uncollectible railway revenues .....	202,552	1	...	80,196	1	...	32,339	1	...	90,017	...	...
Railway operating income .....	\$353,616,358	\$1,550	\$1,646	\$144,995,019	\$2,469	\$2,451	\$38,398,178	\$908	\$1,158	\$170,223,161	\$1,339	\$1,432

\* Includes \$9 unclassified. † Includes \$6 unclassified. ‡ Includes \$34 unclassified. § Includes \$23 unclassified. ¶ Includes \$1 unclassified.

#### Dynamometer Car for the Japanese Railways

The Imperial Government Railways of Japan have recently put in service a dynamometer car, which was built in this country to the designs of Edward C. Schmidt, professor of railway engineering, University of Illinois. Its general dimensions and

ft. 6 in. gage and has the buffers, vacuum brake, and hook and link couplers common in Japanese railway practice. A space of 13 ft. at the rear of the car is occupied by a berth section, lockers and lavatories, leaving a workroom 7 ft. 9 in. wide by 27 ft. long, which contains the recording apparatus, work bench, desk

and other equipment. An axle generator and storage battery equipment furnishes current for the lights and the motor and magnets of the recording apparatus.

Motion for all apparatus within the car is obtained by means of gearing from the axle of an auxiliary truck located behind the forward car truck. This truck carries a pair of small wheels on a single axle whose relation to the car axis remains fixed. The dynamometer for measuring the drawbar pull is an oil-filled cylinder mounted on the center sills toward the front end of the car.

Another indication of Japan's progressiveness along this line is shown by the thoroughly equipped laboratory for testing locomotives which the Japanese Government Railways have recently established in Tokio. With this plant and the dynamometer car, the Japanese railways have facilities for experimental study of the problems of locomotive and train operation equaled on only one American railway.

#### Proposed Railway Legislation

The senate committee on common carriers of the Texas legislature has voted to report unfavorably the full crew bill.

A bill before the New Hampshire legislature, which already has been passed by the lower House, gives the Public Service Commission authority to allow an increase in the price of mileage tickets.

A bill has been introduced in the Iowa legislature providing for semi-monthly payments of wages by railroads.

An extra crew bill has been introduced in the Iowa legislature which would prohibit the flagman from helping the baggage-man at stations and forbid duties being imposed upon him which would interfere with his duty to protect trains while they are at stations.

Representatives of the conductors', trainmen's, enginemen's and firemen's unions, in Ohio, have announced that they will concentrate their efforts before the legislature this year on the effort to secure the passage of the train limit bill and to oppose the repeal of the extra crew law, but will urge no other anti-railroad legislation.

A bill has been introduced in the lower house of the New York legislature, by Mr. Mead, of Erie, making it illegal to run trains, the length of which is more than half a mile.

A bill introduced in the New York legislature by Senator Whitney, of Saratoga, would allow employees of railroads doing an interstate business, if not enjoying the benefit of the federal compensation law to secure indemnity for injuries under the New York State Workmen's Compensation Law. The bill makes it compulsory for employers in this class to provide such compensation under the terms of the New York law.

A bill has been introduced in the Missouri legislature to require interstate railroads to establish stations not more than five miles from the state line, to put an agent in charge and to stop trains long enough to enable passengers to buy new tickets and have their baggage rechecked, in order to take advantage of the lower intrastate passenger fares.

The Commercial Club of Webb City, Mo., has adopted resolutions opposing anti-railroad legislation and urging the representative of the district in which the city is located to use his efforts toward improving the condition of the railways.

The lower house of the Utah legislature has defeated a bill making it unlawful to trespass on the right of way or property of a railroad company. At a hearing before the public utilities committee of the house officers for the railroads estimated that the seven bills now before the house, introduced at the behest of railway employees, would impose a burden of nearly \$3,000,000 a year on the six largest railroads of the state, if they should be enacted. These include an extra crew bill, a train limit bill and a headlight bill.

A resolution has been introduced in the Minnesota legislature calling for a detailed investigation by the Minnesota Railroad & Warehouse Commission of recent increases in railroad rates in Western Classification Territory.

A bill has been introduced in the Minnesota legislature providing for an allowance of \$2 a car to grain shippers for cooper-

age of cars used for loading grain shipments. Attorneys for the principal railroads of the state appeared before the senate transportation committee on January 28, to protest against the bill. They told the committee that such a law would cost the Great Northern approximately \$1,000,000 annually, the Chicago, St. Paul, Minneapolis & Omaha approximately \$200,000, the Northern Pacific approximately \$600,000, and the Chicago, Milwaukee & St. Paul about \$300,000 a year, and would make it possible many times for shippers to collect the \$2 charge whether the cars did or did not need cooping.

Bills have been introduced in the legislature of Pennsylvania to require all locomotives to have headlights of a specified candle power; to require all locomotives to be equipped with bell ringers; to make real estate of railroad companies, street railway companies, etc., subject to taxation by counties, cities and towns; to provide for the incorporation of omnibus lines and define their motive power; to provide for compensation by employers for accidental injuries to employees, etc., and to establish an industrial accident board; and to impose numerous requirements on street railways, including air brakes and automatic air pipe couplers on all street passenger cars running on the public streets.

A bill has been introduced in the legislature of Maine providing that nine hours in 24 shall constitute a day's work for all employees in and about freight and passenger stations and roundhouses. These employees are more specifically designated as baggage men, cleaners, engine house employees, freight checkers, freight handlers, janitors and persons performing the work of janitors, platform men and train callers, receiving and delivery clerks, watchmen, flagmen and crossing tenders. Each day's work of nine hours must be so arranged that it will provide a lay off of at least 14 hours in 24 unless an employee shall voluntarily request otherwise in writing. Maximum penalty for violation, \$100. There is a law now in force, in Massachusetts, something like this.

A bill has been introduced in the Nebraska legislature said to be aimed at the claim made by the Union Pacific for a 400 ft. right of way through certain counties of the state. The bill provides that the right of way of railroads through the state outside of cities or villages shall be of a uniform width in each county, except where additional property is required for yards, stations, freight houses or roundhouses. The bill also forbids railroad companies to acquire or hold any real estate outside of this uniform width. As a penalty for failure to comply with the act it is provided that a railroad company shall lose its right to proceed by condemnation for acquiring any other real estate in the county. The theory is that the railroads will either be required to give up a part of their present right of way or buy more land to make the entire right of way wider.

The railroad committees of the house and senate of the Kansas legislature held a hearing on February 1, on the extra crew, the train limit and other bills affecting railroads and their employees. Officers of the railroads and representatives of the employees appeared and presented arguments. All of the employees' representatives favored the bills, except a negro porter, representing the porters, who opposed the extra crew bill, on the ground if an extra brakeman or flagman were required on passenger trains the elimination of the train porters would follow. A. De Bernardi, general superintendent of the Missouri Pacific, said that if the bill were passed, for every extra brakeman added it would be necessary for many roads to lay off two trackmen as a measure of economy, and that the trackmen were more essential to safety than the extra brakeman. Representatives of the roads also brought out the fact that the trainmen had never attempted to negotiate with the officers of the road for extra brakemen.

#### Canadian Railway Development

Sir William Mackenzie, president of the Canadian Northern, reported in a press despatch of February 8, charges Sir Thomas G. Shaughnessy, president of the Canadian Pacific, with making remarks tending to impair the credit of Canada. Sir Thomas was quoted as saying that the only threatening feature in Canada was the situation resulting from the wild and stupid railway policy which has been pursued there, exemplified by the construction of two additional transcontinental lines, almost en-



tirely under the auspices of the government, many years in advance of their time.

Sir William said: "When the Canadian Northern began building in 1896, there was 16,270 miles of road in Canada; and in 1913 there was 29,304 miles. During the eighteen years in which the mileage had not quite doubled, the foreign trade of Canada more than quadrupled, and although full statistics of the domestic trade are not available, there is no doubt that that expanded in proportion. At any rate, the aggregate earnings of the Canadian railways increased by five times.

"If there was not a need for more railways, what justification was there for Sir Thomas to spend millions of dollars annually for several years in double-tracking the company's main line? Why did the company recently spend millions on a new line between Toronto and Ottawa, when it already possessed one between these points?

"Sir Thomas criticises the assistance which the Canadian government has given to development of the sources of the country through new railways, forgetful that his own company has received from the Dominion government more than all the other railways put together.

"What, then, are the 'threatening features' in the Canadian railway situation? Two additional transcontinental lines will soon be under operation, both with better grades, and better prepared to perform their functions than the transcontinental line of the Canadian Pacific. The maximum grade of the Canadian Northern through the Rocky mountains is 0.4 per cent, with the exception of 60 miles in the Albreda Pass, where the maximum rises to 0.7 per cent. The maximum grade of the Canadian Pacific through the Rocky mountains is more than 2 per cent. The Canadian Northern last year carried one-third of the grain moved to the head of the Great Lakes. During the period in which the railway mileage of Canada has not been doubled the grain annually produced on the prairies increased from thirty million to more than five hundred million bushels yearly."

#### New York Merchants for Sane Regulation.

The Chamber of Commerce of the state of New York, at a meeting in New York City, February 4, adopted a resolution endorsing the views presented by Samuel Rea, president of the Pennsylvania Railroad in his address which was given before the Chamber in December, and which was printed in the *Railway Age Gazette* of December 11, page 1089.

Mr. Rea, it will be recalled, suggested the improvement of the personnel of the Interstate Commerce Commission, the extension of the authority of the commission over mail transportation and other things, and that Congress should refer to the commission all proposed legislation affecting wages, taxes, safety appliances, etc.; that valuation of railroad property should be first undertaken in a limited territory, and that proposed increases in freight rates should not be suspended without a hearing for more than sixty days.

The chairman of the Chamber of Commerce Committee, in presenting the resolution said:

"Mr. Rea's recommendations, coming as they do from one who has had the broadest experience in dealing with the problems of railroad policy, should receive the approval of all business men. The recommendations are in the interest not merely of the railroads, but of the stability and prosperity of the nation. They represent business statesmanship of the highest order. The wisdom of the recommendations is so self-evident that your committee does not believe that it is necessary to enter into an elaborate explanation or advocacy of them. We believe that the stamp of the Chamber's approval upon Mr. Rea's suggestions will serve to promote a public opinion that eventually will force their enactment into legislation."

The Chamber instructed the committee to make further study of the problem with the view of specific recommendations to Congress for a more enlightened policy of public regulation of railroads.

#### New York Railroad Club

At the regular monthly meeting of the New York Railroad Club, to be held in the Engineering Societies building, on Friday, February 19, a paper will be presented by L. J. Foley, superintendent of telegraph of the Delaware, Lackawanna & Western, entitled "Train Despatching by Wireless."

#### Western Railway Club

At the regular monthly meeting of the Western Railway Club, to be held in Chicago, at 2 o'clock in the afternoon of February 16, a paper will be presented by George S. Goodwin, mechanical engineer of the Chicago, Rock Island & Pacific, entitled "The Value of the Locomotive."

### MEETINGS AND CONVENTIONS

*The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.*

- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Demurrage Commissioner, 845 Old South Bldg., Boston, Mass. Annual convention, April, 1915, Richmond, Va.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, April 15-16, San Francisco, Cal.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 16-18, 1915, Chicago.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. W. Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except June, July and August, 220 W. 57th St., New York.
- ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, 1300 Pennsylvania Ave., N. W., Washington, D. C. Annual convention, April 28, 1915, Piedmont Hotel, Atlanta, Ga.
- CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except July and August, Lytton Bldg., Chicago.
- CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention, March 15-19, 1915, Chicago.
- NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill. Regular meetings, 2d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.
- RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.
- RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Times Bldg., Bethlehem, Pa. Next meeting, March 15, 1915, Chicago. Annual meeting, September 21-24, 1915, Salt Lake City, Utah.
- RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.
- ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.
- SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.
- SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.
- TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.
- TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, Newark.
- TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.
- TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa. Meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.
- TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.
- TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, L. S. & M. S., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.
- WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.
- WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER, 1914

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Maintenance of equipment.	Traffic.	Trans- portation.	Miscel- laneous.	General.	Total.
Alabama & Vicksburg.....	143	\$86,089	\$35,816	\$121,905	\$19,027	\$30,936	\$3,819	\$49,724	\$2,499	\$5,530	\$111,534
Alabama Great Southern.....	309	256,052	95,262	351,314	43,226	82,932	13,815	137,295	2,842	7,903	288,013
Ann Arbor.....	301	117,242	21,782	139,024	19,759	27,695	4,192	81,405	303	8,341	137,645
Arizona Eastern.....	367	111,158	21,787	132,945	27,139	20,258	1,914	41,662	704	10,743	102,418
Atlanta & West Point.....	93	48,129	35,659	83,788	13,837	20,181	5,425	13,837	1,696	5,194	75,991
Atlanta, Birmingham & Atlantic.....	646	178,296	45,138	223,434	34,485	45,020	11,701	96,912	.....	10,861	198,979
Atlantic Coast Line.....	4,701	2,118,122	718,359	2,836,481	359,641	448,979	61,064	991,879	8,469	75,742	1,938,391
Baltimore & Ohio Chicago Terminal.....	79	.....	487	487	7,665	16,356	960	53,927	1,545	3,936	81,180
Bangor & Aroostook.....	631	208,993	49,366	258,359	47,945	83,324	2,657	83,324	471	9,475	194,619
Belt Ry. Co. of Chicago.....	24	.....	.....	.....	2,905	26,106	1,002	135,188	.....	6,247	171,449
Bessemer & Lake Erie.....	205	278,731	26,478	305,209	46,085	127,162	8,798	128,001	5	13,530	319,378
Birmingham & Gulf.....	27	65,345	3,044	68,389	6,388	7,357	908	16,173	1,074	1,722	32,621
Birmingham Southern.....	44	38,089	913	39,002	7,122	10,228	496	28,783	.....	4,130	50,758
Buffalo & Susquehanna R. R. Corp.....	253	121,913	6,794	128,707	24,646	39,413	829	37,616	.....	5,806	108,311
Buffalo & Susquehanna Railway.....	91	9,780	5,521	15,301	17,723	3,025	366	11,780	14	2,446	23,397
Buffalo, Rochester & Pittsburgh.....	586	617,078	89,851	706,929	75,043	168,015	11,788	265,091	1,328	20,484	541,750
Central of Georgia.....	1,924	716,864	267,892	984,756	142,741	190,834	32,097	378,121	1,074	32,785	771,089
Charleston & Western Carolina.....	341	114,728	29,196	143,924	28,014	25,869	3,578	54,700	.....	5,584	117,674
Chesapeake & Ohio Lines.....	2,367	2,257,599	444,850	2,702,449	287,365	613,152	56,035	1,053,048	19,217	75,574	2,104,391
Chicago & Alton.....	1,033	761,796	303,483	1,065,279	118,604	253,080	35,116	491,870	9,483	30,030	938,182
Chicago & North Western.....	8,108	4,216,290	1,574,996	5,791,286	618,383	1,039,801	100,686	2,610,181	45,835	148,977	4,551,628
Chicago Great Western.....	1,429	840,774	245,983	1,086,757	127,032	222,480	47,234	466,172	5,952	33,750	901,138
Chicago Junction.....	24	.....	.....	.....	163,385	17,577	927	100,033	.....	4,283	143,276
Chicago, Milwaukee & St. Paul.....	10,067	5,108,758	1,404,589	6,513,347	728,244	1,036,731	150,454	3,112,911	57,635	150,887	5,058,161
Chicago, Peoria & St. Louis.....	255	98,710	21,805	120,515	127,843	25,116	5,664	58,961	.....	5,225	116,511
Chicago, Rock Island & Gulf.....	477	215,364	51,096	266,460	30,004	35,733	9,320	111,814	1,787	7,682	196,340
Cincinnati, St. Paul, Minneapolis & Omaha.....	1,753	983,339	380,326	1,363,665	118,676	214,065	27,804	578,610	12,923	35,654	975,816
Chicago, Terre Haute & Southeastern.....	374	175,916	16,012	191,928	22,071	37,852	3,389	66,540	1,029	11,375	142,265
Cincinnati, Hamilton & Dayton.....	1,015	463,816	118,304	582,120	81,476	172,791	19,375	351,143	.....	19,604	643,653
Cincinnati, New Orleans & Texas Pacific.....	337	543,189	165,216	708,405	68,978	190,293	25,009	251,602	7,727	20,104	563,713
Cincinnati Northern.....	246	93,370	16,391	109,761	13,325	24,590	2,531	44,306	.....	7,310	88,083
Cleveland, Cincinnati, Chic. & St. Louis.....	2,381	1,965,348	672,977	2,638,325	270,967	553,383	72,557	1,161,273	18,583	63,714	2,135,266
Colorado Midland.....	338	95,504	13,142	108,646	15,308	31,612	6,912	51,692	798	5,441	111,764
Cumberland Valley.....	164	148,484	48,092	196,576	28,119	41,057	4,611	84,557	821	11,844	171,010
Delaware & Hudson Co.—R. R. Dept.....	881	1,532,898	170,099	1,702,997	123,364	365,263	22,903	705,060	12,174	78,775	1,307,137
El Paso & Southwestern Co.....	1,027	466,273	105,151	571,424	74,207	96,845	17,774	183,656	5,921	24,677	403,063
Elgin, Joliet & Eastern.....	776	476,295	27,532	503,827	59,656	126,404	5,797	212,180	.....	21,137	425,148
Florence & Cripple Creek.....	87	85,000	11,325	96,325	6,988	10,653	1,744	28,854	.....	15,035	39,316
Georgia.....	307	161,625	64,650	226,275	27,132	49,382	11,123	104,908	899	7,402	200,846
Georgia, Southern & Florida.....	395	117,000	63,333	180,333	23,862	42,315	7,576	78,105	656	11,130	163,645
Grand Rapids & Indiana.....	575	234,570	126,223	360,793	25,476	66,754	10,336	194,761	169	14,904	312,400
Gulf & Ship Island.....	308	94,919	27,532	122,451	17,209	31,753	2,328	40,558	187	6,700	98,735
Hocking Valley.....	827	645,361	118,837	764,198	43,992	83,412	15,225	159,874	.....	15,035	339,316
Illinois Central.....	4,769	3,785,026	1,065,845	4,850,871	553,026	1,019,894	109,212	2,003,096	29,332	130,000	3,809,095
Indiana Harbor Belt.....	110	.....	.....	.....	38,682	9,244	2,804	133,413	.....	7,350	191,494
International & Great Northern.....	1,159	601,236	150,696	751,932	105,645	154,847	22,028	356,027	3,107	29,846	671,501
Kanawha & Michigan.....	177	169,907	28,288	198,195	28,679	65,659	2,726	68,878	6	7,195	123,144
Kansas City Southern.....	827	645,361	118,837	764,198	43,992	83,412	15,225	159,874	.....	15,035	339,316
Lake Erie & Western.....	906	311,970	60,144	372,114	46,867	79,925	26,146	104,217	.....	13,003	360,187
Lehigh & Hudson River.....	97	125,527	9,224	134,751	15,894	20,861	1,511	54,476	.....	5,918	98,661
Lehigh & New England.....	294	172,945	11,446	184,391	23,936	30,099	1,621	54,735	.....	6,079	114,501
Lehigh Valley.....	1,444	2,690,705	303,684	3,000,389	392,037	628,043	90,053	1,351,911	10,470	88,215	2,588,063
Long Island.....	398	293,809	472,021	765,830	92,061	186,941	7,952	467,833	7,652	32,020	799,212
Louisiana & Arkansas.....	279	111,172	18,645	129,817	19,061	20,819	2,952	38,317	.....	3,833	64,718
Louisiana Ry. & Navigation.....	351	147,916	21,661	169,577	25,584	21,244	5,576	83,555	.....	5,372	141,531
Louisville & Nashville.....	5,034	2,915,207	908,797	3,824,004	621,658	827,572	117,578	1,437,561	18,407	104,230	3,121,927
Louisville, Henderson & St. Louis.....	200	60,078	30,170	90,248	12,034	17,292	5,894	28,688	.....	3,440	49,599
Monongahela.....	1,209	590,203	230,817	821,020	127,507	150,433	8,100	357,468	1,302	30,813	676,446
Midland Valley.....	380	78,176	34,461	112,637	22,104	18,421	1,930	40,374	.....	5,459	86,287
Missouri & North Arkansas.....	365	61,961	26,883	88,844	28,507	33,867	2,800	53,357	.....	4,708	113,239
Missouri, Oklahoma & Gulf.....	334	85,739	18,674	104,413	18,781	22,385	4,080	61,367	.....	5,669	109,766
Missouri, Oklahoma & Gulf of Texas.....	19	10,688	1,370	12,058	1,437	1,437	6,388	4,720	.....	6,462	7,501
Monongahela.....	75	77,455	1,920	79,375	13,855	7,305	842	23,639	.....	2,102	47,743



## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER, 1914—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues				Maintenance		Operating expenses				Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) on year.
		Freight.	Passenger.	Inc. misc.	Total.	Way and structures.	Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.			
New Orleans Great Northern.....	283	\$91,414	\$25,587	\$127,830	\$17,351	\$18,807	\$18,807	\$2,589	\$41,337	\$217	\$6,706	\$87,007	\$1,667	\$39,154	—\$24,090
New Orleans, Texas & Mexico.....	286	93,827	20,950	114,777	119,414	25,158	104,791	3,180	54,502	4,687	9,763	104,791	3,180	213,537	—31,549
New Orleans, Chicago & St. Louis.....	568	820,835	98,200	919,035	84,796	104,791	84,796	39,373	460,828	5,131	20,475	214,979	31,267	213,537	—24,613
New York, Philadelphia & Norfolk.....	112	202,546	41,359	243,905	268,021	23,867	134,791	4,439	134,791	8,332	70,050	231,323	12,000	243,323	—4,420
Norfolk & Western.....	2,044	2,502,957	371,897	3,074,854	3,021,440	294,904	596,588	63,781	1,008,505	8,332	70,050	1,992,707	155,000	873,665	—191,203
Norfolk Southern.....	900	218,846	86,301	305,147	329,212	37,877	45,885	6,901	132,800	163	109,722	242,699	9,525	75,625	—15,645
Norfolk Pacific.....	6,498	3,230,143	922,987	4,153,130	4,079,791	374,365	440,469	84,905	1,587,738	71,178	109,521	2,589,076	61,619	1,711,591	—486,340
Oregon Short Line R. & Nav. Co.....	2,162	1,115,450	332,542	1,447,992	1,388,800	163,261	238,480	35,335	420,075	24,237	51,710	948,617	80,571	578,066	—85,120
Oregon-Washington R. & Nav. Co.....	2,025	694,148	333,745	1,027,893	1,132,132	121,335	145,780	40,281	408,505	10,876	37,676	779,899	24,237	271,621	—38,421
Pennsylvania Railroad.....	1,757	2,349,990	780,921	3,130,911	3,551,308	554,138	768,573	82,830	1,581,428	33,601	117,703	3,138,274	84,529	168,243	—310,294
Pennsylvania Railroad & Washington.....	4,521	9,852,342	3,092,817	12,945,159	14,366,256	2,121,744	3,223,264	294,413	5,995,438	223,077	408,191	12,196,429	596,314	1,571,748	—1,115,919
Philadelphia, Baltimore & Washington.....	717	696,663	706,937	1,403,600	1,539,937	253,414	322,008	29,413	713,994	17	44,828	2,333,675	148,066	382,563	—20,498
Pittsburgh, Cincinnati, Chic. & St. Louis.....	1,472	1,849,462	647,823	2,497,285	2,856,153	356,640	573,193	72,616	1,212,997	22,478	86,686	2,333,675	148,066	382,563	—20,498
Richmond, Fredericksburg & Potomac.....	88	118,883	22,486	141,369	151,313	28,992	78,736	3,789	89,692	.....	7,392	188,557	6,476	161,558	—9,652
St. Joseph & Grand Island.....	258	82,346	24,486	106,832	116,021	10,278	16,736	4,327	45,149	.....	5,713	85,203	14,344	16,469	—2,593
St. Louis & San Francisco.....	4,746	2,281,791	863,585	3,145,376	3,364,465	418,168	563,247	63,933	1,189,286	.....	91,647	2,336,280	95,353	939,669	88,449
St. Louis, Brownsville & Mexico.....	548	89,372	53,226	142,598	158,832	34,407	21,607	5,105	57,019	.....	12,195	2,336,280	3,673	12,989	—47,856
Seaboard.....	3,101	1,260,266	400,684	1,660,950	1,845,154	192,817	261,949	57,269	678,439	7,603	56,843	1,244,920	91,141	497,666	—172,540
Southern Pacific.....	6,522	4,339,440	2,201,709	6,541,149	7,259,094	714,423	1,041,382	156,572	2,535,309	126,913	234,364	4,787,679	344,722	2,121,930	—363,033
Tennessee Central.....	294	72,817	30,800	103,617	110,848	25,376	16,601	5,410	47,042	.....	6,998	101,347	4,480	5,007	—29,842
Union Pacific.....	3,617	3,098,064	760,941	3,859,005	4,320,770	343,691	653,665	87,643	1,207,068	66,515	142,085	2,498,643	223,485	1,598,212	305,550
Union Railroad of Pennsylvania.....	31	104,612	20,179	124,791	156,624	13,508	9,764	.....	4,532	.....	3,568	23,608	1,567	102,305	—19,165
Vandalia.....	910	625,354	182,031	807,385	925,466	83,278	183,369	21,979	375,724	987	22,046	687,379	30,283	207,654	—29,453
Virginia.....	503	357,299	30,509	387,808	417,465	58,302	73,637	4,981	108,666	9,207	14,945	292,340	20,000	128,125	—77,730
Washington Southern.....	36	130,827	211,691	342,518	383,905	94,635	88,585	12,861	233,115	2,644	12,825	444,646	30,216	90,966	—97,344
West Jersey & Seashore.....	661	533,363	67,920	601,283	640,838	89,871	107,996	20,112	245,535	1,575	20,676	485,459	25,500	129,879	71,597
Western Maryland.....	133	54,430	37,369	91,799	101,423	18,488	22,037	5,814	33,102	1,562	4,309	88,318	5,728	10,349	—35,650
Western Ry. of Alabama.....	459	240,277	40,158	280,435	321,887	34,835	60,037	10,136	161,027	1,080	13,366	318,381	29,906	27,500	—185,786
Wheeling & Lake Erie.....	1,381	888,059	224,171	1,112,230	1,264,458	128,637	127,306	17,118	409,588	2,400	24,372	708,249	50,000	405,903	—279,038
Yazoo & Mississippi Valley.....	143	\$491,545	\$226,983	\$718,528	\$792,615	\$126,124	\$293,549	\$22,067	\$93,549	\$18,472	\$33,149	\$691,844	\$43,186	\$57,585	—\$195,421
Alabama & Vicksburg.....	309	1,652,934	585,276	2,238,210	2,445,797	282,961	624,286	82,932	838,784	2,706	56,802	1,905,066	93,003	477,653	—195,421
Alabama Great Southern.....	297	833,795	302,946	1,136,741	1,215,030	139,019	171,117	26,691	473,349	5,291	44,398	860,278	79,980	274,763	—37,907
Arizona Eastern.....	367	790,061	161,761	951,822	1,029,983	162,972	129,850	12,695	282,600	9,180	60,283	669,668	82,849	277,178	—198,561
Atlanta & West Point.....	93	297,307	229,197	526,504	604,787	96,679	141,278	31,993	187,839	.....	27,516	494,424	41,409	68,782	—65,961
Atlanta, Birmingham & Atlantic.....	646	960,433	298,827	1,259,260	1,377,653	210,127	264,351	76,526	587,499	.....	60,892	1,199,396	68,993	108,925	—207,180
Atlantic Coast Line.....	4,701	9,963,186	3,860,061	13,823,247	15,007,498	2,430,028	896,230	344,543	5,630,566	42,549	462,871	11,746,523	828,000	2,430,063	—1,688,817
Baltimore & Annapolis.....	79	1,246,338	360,450	1,606,788	1,709,336	299,932	293,895	15,793	530,317	6,802	57,247	1,203,547	505,788	452,454	—100,836
Belt Ry. Co. of Chicago.....	24	.....	.....	.....	1,677,592	91,180	144,606	5,486	581,398	.....	36,917	859,586	65,672	752,334	288,430
Bessemer & Lake Erie.....	205	4,920,565	228,566	5,149,131	4,232,441	391,791	963,408	60,592	1,082,775	10,106	69,702	2,559,575	2,672,866	2,558,835	537,601
Birmingham & Gulf.....	27	555,705	23,072	578,777	622,489	61,207	77,810	5,489	107,114	487	11,123	263,229	319,260	307,652	—239,223
Birmingham Southern.....	44	248,295	6,400	254,695	261,095	103,371	77,366	2,756	170,650	.....	21,514	375,657	16,571	37,321	—146,649
Buffalo & Susquehanna R. R. Corp.....	253	708,402	43,332	751,734	821,449	149,544	225,252	6,571	226,501	.....	32,672	640,540	15,600	114,283	60,179
Buffalo & Susquehanna Railway.....	91	89,221	44,906	134,127	149,524	30,225	52,125	2,922	73,678	.....	14,651	173,804	9,600	33,860	—33,860
Buffalo, Rochester & Pittsburgh.....	586	4,253,153	619,818	4,872,971	5,057,915	702,439	1,193,065	69,089	1,608,757	8,073	108,418	3,689,840	120,000	1,247,882	508,090
Central of Georgia.....	1,924	4,026,081	1,671,130	5,697,211	6,333,382	896,230	1,202,562	207,613	2,216,315	7,498	202,850	4,710,924	272,109	1,348,389	—58,119
Charleston & Western Carolina.....	341	670,794	178,390	849,184	927,574	184,277	174,200	23,413	331,571	.....	27,367	740,754	30,000	124,178	—11,421
Chesapeake & Ohio Lines.....	2,367	15,139,350	3,161,515	18,300,865	19,519,486	2,302,892	4,216,175	333,303	6,368,665	127,152	438,485	13,786,672	659,532	5,072,203	—299,967
Chicago & Alton.....	1,033	4,826,062	2,113,562	6,939,624	7,546,618	837,785	1,647,911	218,733	2,641,464	60,896	177,819	5,584,608	270,360	1,690,310	412,126
Chicago & North Western.....	8,108	27,735,642	11,350,845	39,086,487	42,499,025	6,260,650	6,822,855	661,458	15,246,997	315,300	866,795	30,061,769	2,250,000	11,437,636	—1,010,332
Chicago Great Western.....	1,428	5,097,775	1,675,727	6,773,502	7,385,415	1,047,673	1,253,589	285,836	2,589,482	39,818	212,276	5,420,824	12,147	1,670,637	—76,600
Chicago Junction.....	24	.....	.....	.....	987,173	129,217	108,631	5,975	529,952	.....	27,274	801,048	186,125	173,915	—76,600
Chicago, Milwaukee & St. Paul.....	10,067	33,845,840	10,017,634	43,863,474	48,790,069	6,126,195	6,750,428	914,984	18,539,433	388,958	882,532	32,450,450	2,432,821	13,888,756	—1,214,293
Chicago, Peoria & St. Louis.....	255	549,093	130,390	679,483	720,908	120,777	125,966	29,466	296,006	.....	26,253	598,467	28,500	93,941	147,310
Chicago, Rock Island & Gulf.....	477	1,156,853	314,792	1,471,645	1,585,866	194,638	238,924	57,904	606,326	10,800	46,070	1,144,662	45,026	395,896	19,134
Chicago, St. Paul, Minneapolis & Omaha.....	1,753	6,092,547	2,795,278	8,887,825	9,595,055	1,177,768	1,258,797	172,989	3,403,593	91,582	216,056	6,305,074	541,090	2,747,384	97,790
Chicago, Terre Haute & Southeastern.....	374	1,025,841	105,228	1,131,069	1,164,522	173,093	277,058	21,302	347,235	5,404	59,689	283,781	70,000	210,741	95,873
Cincinnati, Hamilton & Dayton.....	1,015	3,802,220	830,209	4,632,429	5,170,414	718,517	968,885	122,684	2,265,168	.....	111,901	4,187,420	222,737	788,563	113,525
Cincinnati, New Orleans & Texas Pacific.....	337	3,585,508	908,026	4,493,534	4,762,695	498,784	1,329,494	150,916	1,491,240	34,569	126,488	3,631,491	186,000	945,021	565,748
Cincinnati Northern.....	246	676,012	122,639	798,651	833,872	129,217	108,631	16,437	266,091	.....	20,329	569,077	31,463	233,052	234,267

## REVENUES AND EXPENSES OF RAILWAYS

SIX MONTHS OF FISCAL YEAR ENDING JUNE 30, 1915—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses			Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) income, with last year.
		Freight.	Passenger.	Total.	Way and structures.	Maintenance of equipment.	Trans- portation.				
Cleveland, Cincinnati, Chic. & St. Louis.	2,381	\$12,569,549	\$4,537,613	\$17,107,162	\$2,006,260	\$3,559,809	\$7,027,217	\$5,221,382	\$781,027	\$4,431,746	\$2,205,594
Colorado Midland	338	797,423	1,045,410	1,842,833	167,060	220,654	406,217	163,100	111,921	51,179	99,488
Cumberland Valley	164	1,076,818	355,630	1,432,448	288,789	209,644	522,324	416,709	34,069	382,638	83,315
Delaware & Hudson Co.—R. R. Dept.	881	9,628,297	1,642,409	11,270,706	847,259	1,889,789	4,207,306	4,376,854	333,619	4,042,884	4,042,884
El Paso & Southwestern Co.	1,027	2,857,540	626,552	3,484,092	468,084	546,018	1,027,460	1,470,159	191,407	1,278,752	54,297
Elgin, Joliet & Eastern	776	3,995,099	35	4,029,402	438,649	41,580	1,271,863	1,578,900	197,350	1,381,551	453,839
Florence & Cripple Creek	87	495,322	100,868	596,190	67,436	57,337	180,706	265,925	33,889	232,036	5,080
Georgia	307	990,458	406,773	1,397,231	177,827	302,393	650,584	262,828	25,082	237,466	120,210
Georgia, Southern & Florida	395	679,995	360,943	1,040,938	188,169	252,727	465,310	209,130	55,419	153,741	50,445
Grand Rapids & Indiana	575	1,528,601	1,074,562	2,603,163	289,712	431,377	1,162,724	800,394	145,342	652,776	71,137
Gulf, Colorado & Santa Fe	308	618,387	166,001	784,388	107,308	180,111	225,677	264,705	43,554	221,103	136,295
Hocking Valley	4,769	23,239,836	6,909,480	30,149,316	4,571,894	7,140,621	11,578,515	1,162,517	232,800	929,717	357,264
Indiana Harbor Belt	110	.....	.....	.....	235,067	160,285	16,423	522,144	46,407	475,116	139,592
International & Great Northern	1,159	3,450,605	1,032,075	4,482,680	785,517	786,055	2,094,642	817,814	180,000	637,497	674,079
Kanawha & Michigan	177	1,356,846	188,752	1,545,597	222,040	380,272	462,619	464,298	69,511	394,771	81,125
Kansas City Southern	827	3,998,784	790,992	4,789,776	585,577	638,213	1,745,031	1,896,008	285,279	1,608,980	288,002
Lake Erie & Western	906	2,343,670	422,117	2,765,787	411,368	494,837	87,434	690,012	146,541	542,500	119,622
Lehigh & Hudson River	97	832,186	60,377	892,563	134,285	119,714	8,053	290,301	24,900	265,401	78,222
Lehigh & New England	294	1,302,488	8,197	1,310,685	178,386	187,749	10,546	627,716	34,019	593,697	194,383
Lehigh Valley	1,444	18,549,693	2,310,129	20,859,822	2,433,868	4,396,528	7,751,331	6,570,536	841,000	5,729,536	510,295
Long Island	398	1,941,354	4,375,108	6,316,462	705,638	702,210	2,903,333	2,670,008	397,185	2,272,751	37,994
Louisiana & Arkansas	279	699,086	120,767	819,853	160,129	140,134	15,799	274,383	37,500	237,883	27,883
Louisiana Ry. & Navigation	351	802,304	135,110	937,414	193,262	108,309	34,101	772,390	47,000	180,106	18,913
Louisville & Nashville	5,034	19,133,344	5,850,415	24,983,759	4,249,915	5,514,593	9,190,763	6,534,606	1,105,715	5,428,891	1,874,728
Louisville, Henderson & St. Louis	200	472,428	211,405	683,833	150,392	155,422	32,039	181,580	22,800	158,736	14,846
Maine Central	1,219	3,509,704	1,980,772	5,490,476	896,457	1,000,337	2,200,502	1,689,960	306,525	1,383,293	78,628
Midland Valley	380	490,925	232,359	723,284	151,578	135,732	245,732	181,235	39,494	141,465	3,653
Missouri & North Arkansas	365	393,653	204,993	598,646	174,833	131,235	308,922	27,427	36,000	63,701	132,434
Missouri, Oklahoma & Gulf	334	472,815	124,413	597,228	129,441	99,700	280,874	59,536	38,816	20,312	12,847
Missouri, Oklahoma & Gulf of Texas	19	59,260	2,119	61,379	10,037	9,617	2,362	12,021	1,180	10,841	7,288
Monongahela	70	498,908	12,996	511,904	100,639	117,417	138,900	295,526	9,408	217,113	232,263
New Orleans, Great Texas & Mexico	283	585,940	159,588	745,528	127,135	107,541	16,062	530,386	17,000	513,386	114,985
New Orleans, Texas & Mexico	286	641,742	122,475	764,217	92,404	102,804	22,998	657,887	10,083	647,804	15,634
New York, Chicago & St. Louis	568	4,697,823	768,910	5,466,733	734,786	676,720	2,479,919	1,382,759	241,267	1,140,866	64,028
New York, Philadelphia & Norfolk	112	1,505,398	274,599	1,780,000	188,490	374,041	838,241	1,513,739	58,800	377,479	8,311
Norfolk & Western	2,044	18,030,038	2,542,977	20,573,015	3,020,170	4,100,209	6,372,093	7,338,969	870,000	6,468,969	435,672
Norfolk Southern	6,900	1,228,655	582,702	1,811,357	269,627	311,003	728,826	490,172	68,051	420,755	135,487
Norfolk Pacific	6,498	24,770,308	7,722,200	32,492,508	4,855,691	4,604,070	10,106,328	15,016,545	2,436,383	12,579,931	1,639,857
Oregon Short Line	2,162	7,899,130	2,442,435	10,341,565	1,588,990	1,435,397	2,679,343	4,925,076	64,890	4,860,186	869,909
Oregon-Washington R. R. & Nav. Co.	2,025	5,395,254	2,394,368	7,789,622	849,639	965,293	2,723,041	3,254,458	558,153	2,696,305	243,748
Pennsylvania Company	1,757	20,346,285	5,171,211	25,517,496	4,210,482	5,101,984	10,776,024	7,483,027	1,558,911	5,927,087	1,835,933
Pennsylvania Railroad	4,521	66,240,131	20,548,740	86,788,871	12,441,198	18,411,120	33,558,531	24,303,116	3,860,401	20,442,715	3,768,989
Philadelphia, Baltimore & Washington	717	5,156,812	4,313,683	9,470,495	1,604,386	1,911,770	4,403,586	2,191,505	39,042	1,854,169	604,497
Pittsburgh, Cincinnati, Chic. & St. Louis	1,472	13,416,876	4,240,872	17,667,748	2,616,188	3,792,434	7,293,506	5,247,487	992,941	4,253,390	246,222
Richmond, Fredericksburg & Potomac	88	714,635	458,132	1,172,767	127,475	182,388	519,377	435,082	43,409	391,434	15,298
St. Joseph & Grand Island	258	638,157	161,721	799,878	157,476	134,344	28,553	215,526	49,543	165,983	7,067
St. Louis & San Francisco	4,746	14,369,590	5,684,547	20,054,137	2,940,715	3,347,301	7,118,866	7,023,875	613,883	6,409,992	317,669
St. Louis, Brownsville & Mexico	3,100	6,980,350	2,294,441	9,274,791	1,243,298	1,586,052	3,850,421	2,939,849	546,141	2,390,400	888,166
Southern Pacific	6,512	31,398,862	14,146,241	45,545,103	4,939,628	6,964,255	15,838,083	19,404,925	2,470,498	16,919,451	2,615,301
Tennessee Central	297	507,080	210,677	717,757	76,732	104,249	33,349	108,006	81,113	26,846	130,889
Union Pacific	3,617	21,038,080	5,321,679	26,359,759	3,528,190	3,774,773	538,756	13,510,062	1,143,080	12,366,982	118,535
Union Railroad of Baltimore	9	669,939	138,037	807,976	81,846	601,520	27,550	694,782	33,841	660,941	68,141
Union Railroad of Pennsylvania	31	.....	.....	.....	250,004	.....	788,739	268,571	14,171	254,400	268,954
Vandalia	910	39,080,035	1,269,235	40,349,270	5,815,887	816,818	128,044	1,356,555	189,273	1,167,132	249,396
Virginian	503	2,543,093	213,805	2,756,898	377,954	528,311	68,424	1,214,247	152,500	1,061,747	405,539
Washington Southern	36	216,424	24,449	240,873	73,910	79,134	8,081	147,392	19,753	127,622	14,568
West Jersey & Seashore	356	951,533	247,381	1,198,914	569,748	528,261	1,488,828	996,567	171,403	825,002	18,327
Western Maryland	661	3,451,720	546,263	3,997,983	615,071	691,906	125,812	1,093,641	149,000	944,641	340,390
Western Ry. of Alabama	459	2,343,810	353,445	2,697,255	323,445	353,445	16,284	97,605	33,191	64,414	124,300
Wheeling & Lake Erie	459	2,343,810	353,445	2,697,255	323,445	353,445	16,284	97,605	33,191	64,414	124,300
Yazoo & Mississippi Valley	1,381	4,457,150	1,233,417	5,690,567	808,834	808,834	1,461,221	1,811,828	300,000	1,511,828	463,508



## Traffic News

The Traffic Club of Chicago has announced that its annual banquet will be held on the evening of February 25, at the Hotel LaSalle, Chicago.

There was a decrease of 449,315 tons in the shipments of anthracite in January as compared with January, 1914. Total shipments were 4,831,329 tons as compared with 5,280,644 tons. The amount of coal on hand at tidewater shipping ports increased from 669,833 tons on December 31, to 798,125 tons on January 31.

The National Automobile Chamber of Commerce has issued a statement to the effect that shipment of automobiles from factories of this country in the year 1914 amounted to 138,250 carloads, each car usually containing from two to six complete automobiles. It is estimated that the freight bills on these shipments amounted to \$15,000,000.

The Department of Agriculture reports the conviction of two men, with heavy fines, for conspiracy to violate the Food and Drugs Act and other federal statutes. These were a prominent coffee merchant and a shipping agent who conspired to violate the Food and Drugs Act in the shipment of coffee in interstate commerce from New York to the west. The two defendants were each fined \$3,000, and by reason of their conviction of a felony lost their citizenship, under the provisions of a New York statute. In New Jersey several indictments for conspiracy to violate the Food and Drugs Act have been found against a number of egg handlers who have been illegally shipping spoiled eggs in interstate commerce for food purposes.

### Quarantines

A quarantine was placed at the stock yards in Jersey City, N. J., August 5, because of the discovery of 13 cases of foot-and-mouth disease. The union stock yards at Richmond, Va., were quarantined on Monday of this week by the governor of the state, because of the discovery of infected animals in a pen adjacent to the stock yard. The quarantine at Chicago was discontinued February 8. The government has issued orders that no cattle may be held for more than 48 hours.

The Department of Agriculture reports that foot-and-mouth infection has again been discovered in the stock yards of nine cities—Chicago, Pittsburgh, Indianapolis, Louisville, Buffalo, Cincinnati, Columbus, Jersey City and Baltimore; and these stock yards were ordered closed until thoroughly disinfected. This is a setback in the campaign to eradicate the plague, but it is considered to be by no means as serious a matter as if the disease had broken out in stock held on the farms. All the cattle affected were destined for immediate slaughter. No stockers or feeders were included among them. But it will be necessary to disinfect all cars used in these shipments and all yards through which they have passed. The new outbreak, however, in the opinion of the federal authorities emphasizes the necessity of adhering for some time longer to the quarantine regulations that prohibit the shipment of any stock from the quarantined area for any purpose except immediate slaughter. The government also holds that cattle bought for slaughter and found to be affected with foot-and-mouth disease shall not be paid for, but may be condemned under the federal meat-inspection law like any other diseased stock. Purchasers of cattle for slaughter in territory where there is reason to suspect the existence of the disease purchase at their own risk.

### Good Farming Promoted Without a Special Train

The Sunset-Central Lines with a view of stimulating interest in diversified farming, along the lines in Texas and Louisiana, have offered the following cattle prizes for 1915:

For the best general field of corn not less than 10 acres, one thoroughbred Shorthorn sire.

For the second best field, one thoroughbred Duroc-Jersey boar.

For the best 10 acres or more of diversified crops, showing

the greatest cash profits and largest production per acre of not less than four crops or as many more as may be profitably employed, one thoroughbred Jersey, Guernsey or Holstein sire.

For the second best, under the same conditions, one thoroughbred mature Berkshire boar.

For the boy or girl making the best corn production, under the boys' and girls' corn club rules, one thoroughbred Jersey heifer, two years old.

For the boy or girl making the best production of diversified crops on two acres or more, under the same rules, one thoroughbred Jersey heifer, two years old.

### Effects of the Two-Cent Fare on Michigan Roads

In connection with the campaign of the Michigan railroads for a repeal of the two-cent fare law, A. W. Towsley, vice-president and general manager of the Ann Arbor, has compiled and circulated "An appeal to the people of Michigan for justice for the railroads of Michigan," giving statistics and arguments to show that the two-cent law is unreasonable. He shows that the Michigan railroads employ approximately 50,000 men, who earn about \$35,000,000 a year in the state, and that there are about 250,000 people in the state, or one person in each 11, directly dependent on the railroads for their livelihood. He then quotes from the decision of the Interstate Commerce Commission in the five per cent rate case in which the commission recommended an effort to advance state passenger fares, and gives a number of figures showing how railroad expenses have been increased by increases in wages to employees and by state and federal legislation.

"No absolutely correct method," he says, "has yet been devised of dividing the expense of operating freight and passenger trains, but a generally accepted method has been in use on a large number of railroads for a great many years. Using this method of computation and basing it on figures taken from the annual reports of the Michigan Railroad Commission, and allowing 6 per cent interest on tax assessment value of facilities used in passenger service, we find that there has been an annual loss to the Michigan roads in every year from 1908 to 1912, inclusive (the 1912 figures being the last immediately available) as follows:

Year	Income for each passenger carried, all passenger train earnings	Expense of operation, taxes and interest on tax assessment valuation per passenger carried	Deficit per passenger carried
1908.....	\$0.9072	\$1.1479	\$0.2407
1909.....	0.6699	1.0594	0.3894
1910.....	0.6963	1.0917	0.3954
1911.....	0.7112	1.1672	0.4559
1912.....	0.7036	1.0981	0.3945

The average freight rate per ton per mile for the Ann Arbor has decreased from 6.9 mills in 1903 to 5.1 mills in 1914, he says, and if the company had received the same rate during the year 1914 as it received during 1903, it would have earned \$510,484.47 more revenue for the handling of freight than it did. He also gives the average passenger rate for the years 1900 to 1914, showing a decrease from 2.41 cents per mile in 1903 to 1.81 cents in 1914, to show that had the company received the same rate from September 28, 1907, the date the new law was passed, to June 30, 1914, as was received prior thereto, it would have earned \$813,765 more revenue from passenger service than it did.

The circular also gives figures based on a division of total operating expenses between freight and passenger service, showing a loss from all passenger train service of 39.98 cents per train mile, 29.69 cents per passenger carried, and 1.31 cents per passenger mile on the Ann Arbor Railroad for the last fiscal year. These figures show a loss of 8.19 cents per train mile from operation alone, without counting return on the value of the property used or the proper proportion of taxes. Other figures are given to show that the reduction of the passenger fare to two cents in Michigan in 1907 did not result in any material increase in the number of passengers carried.

**KNITTING CARS FOR RUSSIAN LADIES.**—The Russian Ministry of Communications has arranged for cars to be coupled to all long-distance trains, with material for making jerseys, waistcoats, stockings, and other warm garments for the troops so that this can be supplied to lady passengers who desire to work during their journeys.

## Commission and Court News

### INTERSTATE COMMERCE COMMISSION

The commission has announced new dates for the hearings in Chicago on the freight-rate increases proposed by the western railroads. The hearings will be held before Commissioner Daniels, beginning March 4, and lasting until early in April, but if sufficient opportunity is not afforded for consideration of evidence within the dates set, additional dates may be arranged after April 2. The new schedule of hearings follows: March 4-8, railroad evidence supporting claim that increases are reasonable; March 9-12, grain and grain products; March 13-16, livestock, fresh meat, packing house products, and fertilizer materials; March 17-18, hay, straw, and broom corn; March 19-20, cotton piece goods; March 22-25, coal and coke; March 26-27, fruit and vegetables; March 29, rice and rice products; March 30-April 2, evidence of protestants and interveners in rebuttal of evidence of carriers.

#### Northbound Rates on Hardwood From the Southwest

*Opinion by the commission:*

The carriers have proposed to increase the northbound rates on hardwood from the lumber producing region of the southwest, extending from the lower Mississippi river to eastern Texas and Oklahoma, about 2 cents per 100 lb. over existing group rates. The commission finds that the proposed rates will be just and reasonable except in so far as certain of them exceed the present rates on yellow pine lumber for the same hauls, and with the exception of rates from group A, which includes Cairo, Ill., and points from which the same rates apply to Missouri river points, and points taking the same rates or rates basing thereon, in so far as they exceed the present rates by more than 2 cents, and with the exception also of rates from certain points in southeastern Arkansas, which would be affected by a proposed change in the present groups of origin to St. Louis, East St. Louis, Cairo, Thebes and Memphis and points taking the same rates or basing thereon, in so far as they exceed the present rates by more than 2 cents. Similar proposed increased rates on yellow pine and cypress lumber, however, are not found justified. (32 I. C. C., 521.)

#### The Illinois Coal Cases—Increased Rates Justified

*Opinion by Commissioner Harlan:*

This group of cases results from a concerted effort on the part of coal operators in Illinois to bring about a regrouping of the coal mines in that state for rate making purposes, the particular destinations involved in the first complaint being points in Iowa, Minnesota and western Wisconsin. The other cases involve the reasonableness of the present and of proposed increased rates from coal mines in Illinois to St. Louis.

*The Auburn & Alton Case.* The coal producing area of Illinois covers nearly three-fourths of the entire state. The mines are divided into a number of rate groups. On coal destined to points in the northwest, the northern Illinois mines, comprising the Third Vein, Wilmington, Fulton and Peoria fields, with certain exceptions, all take the northern Illinois or Chicago group rate. This is the controlling rate to northwestern destinations, and the other groups take differentials over it as follows: Springfield, 40 cents; Danville, 57 cents; Belleville and Centralia 60 cents and southern Illinois 70 cents. It is alleged that the Springfield group is unduly large, that the differential of 70 cents on coal from the southern mines is not sufficient and that the northern mines are deprived the natural advantages of location. The complainants propose that the Springfield group be divided so that on northbound traffic the mines north of the Christian-Montgomery county line extended shall have a differential of 15 cents a ton under the rates from the mines south of the line, and that the differential of 70 cents in the rates from southern Illinois be increased to \$1.

The commission finds, however, that the present rates are equitable. It is its opinion that the present adverse conditions

are due chiefly to an overdevelopment and overproduction of coal in Illinois and to the superior quality of the southern Illinois coal rather than to any maladjustment of the Illinois coal groups or to any maladjustment of their rates and rate differentials.

*The St. Louis Cases.* These cases involve an attempt by the carriers to increase by 5½ cents a ton the rates on coal to St. Louis from the mines in Illinois, similar increases to East St. Louis also having been filed but not yet put in effect. In the same group of cases discrimination against St. Louis is alleged in that to St. Louis the rate from the so-called inner and outer groups of mines is 20 cents higher than to East St. Louis, this being the amount of the charge of the Terminal Railroad Association for accepting the coal in East St. Louis and delivering it within the switching district of St. Louis at designated points on its own rails or to connecting carriers, and in that the carriers on shipments of coal moving from points within the so-called 100-mile zone do not absorb this charge of 20 cents, whereas they do absorb it on shipments from points beyond the 100-mile zone.

The commission holds that the carriers have justified the proposed increase of 5½ cents a ton. It finds no sufficient basis for holding that the differential against St. Louis of 20 cents a ton, either in the present or the proposed rates on coal from the Illinois mines, offends any provision of the act to regulate commerce. The delivery of coal after it has reached East St. Louis can be effected only by the performance of an additional transportation service over bridges or by car ferries that involve not only additional expense to operate, but a very substantial additional outlay of capital. The distance the coal is carried is also greater, and while the two communities may be one from a commercial point of view, it cannot be held that they also form one community for rate making purposes. In addition, it is also held that there is no just basis for requiring the line carriers to absorb the charges of the Terminal Association on their short haul traffic from the mines within the 100-mile zone. On long-haul traffic from points outside the zone the revenue is sufficient to permit of such absorption, but from points within it is not. (32 I. C. C., 659.)

#### Hearing on Lighterage and Tunnel Absorptions at Chicago

Examiner Brown of the Interstate Commerce Commission began a hearing at Chicago on February 3, in an investigation of the cancellation by Chicago railroads of the absorption of the charges of the tunnel and lighterage companies in the Chicago district. H. C. Barlow, traffic director of the Chicago Association of Commerce, urged the necessity of absorbing such charges in order to treat the entire Chicago district as one rate area. He said that if shippers situated in one part of Chicago were obliged to pay a higher rate than those in other parts of the city they would be at a disadvantage as compared with shippers in other cities whose rates are on a parity with those of Chicago, as in the case of Milwaukee. He said that if the shippers are compelled to pay a charge in addition to the through freight rate for the service of the tunnel or the lighterage companies in getting freight to the railroads, a very large part of the freight that is now transported by the lighters and the tunnel will be teamed to the nearest railroad freight station, which will mean a big increase in the traffic of the Chicago & North Western and Chicago, Milwaukee & St. Paul on the north side of the city, the Chicago, Burlington & Quincy and the Chicago, Rock Island & Pacific on the west side, and the New York Central and Pennsylvania Lines on the south side, to the disadvantage of the weaker lines.

J. J. Wait, president of the Merchants' Lighterage Company, described in detail the organization and history of that company, which was organized in 1903, to connect shippers on the north side and along the river with the terminals of railroads which do not have access to that section of the city. He said that the question had been discussed with members of the Interstate Commerce Commission, who had given the opinion that it was not unlawfully discriminatory for the railroads to pay his company five cents per hundred pounds for its service. Other witnesses who testified were Robert T. Benedict, western manager of the Pennsylvania Salt Manufacturing Company, who asserted that the business of his company would be made unprofitable if it were obliged to pay drayage charges or a charge to the tunnel and lighterage companies, and S. W. Tracy, vice-president of



the Illinois Tunnel Company, who said he did not see how his company could continue in business if the railroads refused to absorb its charge, because so many shippers would team their freight. Martin Van Persyn, manager of the transportation department of Sprague, Warner & Co., also opposed the cancellation of the absorption. Other testimony was given regarding the cost of teaming. The railroads were represented by W. D. McHugh of Omaha.

## STATE COMMISSIONS

The Kentucky Railroad Commission has relieved the Louisville & Nashville from the operation of the long and short haul clause of the state law, in relation to rates on certain commodities from Covington to Central City and from Louisville to Glenss Creek and other points. In the first named case the Louisville & Nashville has to meet the competition of a line running through Ohio and Indiana.

The Michigan railroads have filed a petition with the Michigan Railroad Commission asking authority to make a 5 per cent increase in the rates on coal, coke, iron ore, plaster, starch, sugar beets, bricks, tile, cement and clay. The commission has announced that a hearing will be held this week. Last year the Michigan commission allowed a 5 per cent increase in class rates in the state, but excepted the commodities mentioned, many of which are also excepted in the original decision of the Interstate Commerce Commission in the eastern 5 per cent rate case.

## PERSONNEL OF COMMISSIONS

Howard C. Hopson, chief of the division of capitalization of the New York State Public Service Commission, Second district, has resigned, the resignation to take effect March 1.

Walter Alexander, who has just been appointed a member of the Railroad Commission of Wisconsin, has for the past 13 years held positions as assistant district master mechanic and district master mechanic at Minneapolis and Milwaukee of the Chicago, Milwaukee & St. Paul. The law creating the Railroad Commission requires that one member be familiar with transportation conditions and problems, and it was Governor Philipp's idea that a man who has had practical experience in railroad operation, as well as a technical training as a mechanical engineer, would be best suited for the position. Mr. Alexander was born in Glasgow, Scotland, in 1872, and went to Milwaukee in 1873. After receiving a common school education he served an apprenticeship



Walter Alexander

as a machinist and draftsman with the Chicago, Milwaukee & St. Paul, and was also employed as a fireman on that road. While so employed he prepared himself for college and entered the University of Wisconsin in 1893, graduating in the mechanical engineering course in 1897; and he received a second degree in engineering the following year. After three years' instructional work in engineering at the University of Wisconsin, one year at Armour Institute and one at the University of Missouri he returned to railroad service as assistant district master mechanic of the St. Paul at Minneapolis. Two years later he was transferred to Milwaukee to a similar position, and later was made district master mechanic, which position he has held up to the present time. As district master mechanic he has had charge of the motive power work on the lines east of the Mississippi river.

## Railway Officers

### Executive, Financial, Legal and Accounting

M. Eckert has been appointed auditor, secretary and treasurer of the St. Louis, Brownsville & Mexico, with headquarters at Kingsville, Tex., succeeding O. H. Nance, resigned.

W. W. Collin, Jr., has been appointed commerce counsel of the Michigan Central, with headquarters at Chicago, and Ernest H. Ballard has been appointed commerce counsel, with headquarters at New York.

Bertram Lord, until recently financial manager for Europe of the American Express Company, with headquarters in London, has been appointed financial and foreign manager of Wells, Fargo & Company, with office at New York City. He will be in general charge of the company's money order, travelers' check, telegraph and financial transfer department, as well as the company's oversea freight business and all foreign transactions.

J. W. Wardlaw, whose appointment as assistant to president and purchasing agent of the Central Vermont, with headquarters at St. Albans, Vt., has already been announced in these columns, was born on October 16, 1882, at Galt, Ont., and was educated in the public and high schools of Ontario, Canada. He began railway work on September 24, 1902, in the office of the superintendent of the Grand Trunk at Toronto, remaining in that position until December 31, 1904, and then served as private secretary to the general manager of the Central Vermont until October, 1911. He was then secretary to general manager of the same road until February, 1913, and then to June, 1914, was secretary to the vice-president. Mr. Wardlaw subsequently became secretary to president, which position he held at the time of his recent appointment as assistant to president and purchasing agent, with headquarters at St. Albans, Vt., of the same road as above noted.

Announcement is made by the New York Central Railroad of the following appointments in the land and tax department: Oscar G. Getzen-Danner, general land and tax agent in general charge of tax matters in New York, Pennsylvania and New Jersey; and of land matters in New York, Pennsylvania and New Jersey (excepting portions of the Erie division and of the Franklin division in New York and Pennsylvania), with headquarters at New York. Herbert D. Howe, general land and tax agent, in general charge of land and tax matters in Illinois, Indiana, Michigan and Ohio, and of land matters on portions of the Erie division and of the Franklin division in New York and Pennsylvania, with headquarters at Chicago. Edwin E. Pettibone, assistant general land and tax agent, with headquarters at Cleveland, Ohio. Joseph Moses, assistant general land and tax agent, with headquarters at Cincinnati, Ohio, and Leon C. James, land and tax agent, with headquarters at Cleveland, Ohio.

T. F. Steele, whose election as vice-president and traffic manager of the New Orleans & Northeastern, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, with headquarters at New Orleans, La., has already been announced in these columns, was born on September 27, 1856, at Austin, Tex. He began railway work on December 11, 1880, with the Alabama Great Southern, and has been in the continuous service of lines included in the Queen & Crescent Route ever since. He first served as claim clerk, and later as assistant agent at Chattanooga, Tenn., until April, 1886. He was then consecutively soliciting agent at Birmingham, Ala., agent at New Orleans, and then agent at Birmingham, Ala. In November, 1891, he was appointed division freight agent, and about three years later was appointed general freight agent at Birmingham. He was transferred as general freight agent in April, 1898, to New Orleans, La., and on December 1, 1909, was promoted to freight traffic manager of the New Orleans & Northeastern, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, with headquarters at New Orleans, which position he held at the time of his recent election as vice-president and traffic manager of the same roads, as above noted.

Larz A. Jones, who has been elected president and general manager of the New Orleans & Northeastern, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, with headquarters at New Orleans, La., as has already been announced in these columns, was born on April 19, 1860, near Cincinnati, Ohio, and was educated in the public schools. He began railway work on July 15, 1878, as a clerk in the auditor's office of the Cincinnati Southern, and was in the service of that road and its successors, the Cincinnati Railroad, and the Cincinnati, New Orleans & Texas Pacific in a clerical position until August, 1883, and then was traveling auditor of the C. N. O. & T. P. until January, 1884. He was subsequently chief clerk of freight accounts of the Queen & Crescent System, and from January, 1890, to October, 1895, was assistant comptroller of the same system. On October 1, 1895, he was appointed auditor of the New Orleans & Northeastern, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific, and in August, 1907, was elected vice-president and comptroller, which position he held at the time of his recent election as president and general manager of the same roads. From March, 1904, to April, 1911, he was also auditor of the New Orleans Terminal Company, and since April, 1911, vice-president and auditor of the same company.

#### Operating

J. M. Guild, assistant general safety agent of the Union Pacific, at Omaha, Neb., has been appointed general safety agent.

J. W. Trueb has been appointed superintendent of car service of the Vandalia, with headquarters at Terre Haute, Ind., succeeding J. W. Roberts, promoted.

C. E. Leverich, assistant general superintendent of the Great Northern at Spokane, Wash., has been transferred to Great Falls, Mont., in a similar capacity. G. S. Stewart, division superintendent at Spokane, succeeds Mr. Leverich. T. B. Degnan, superintendent of terminals at Seattle, Wash., has been appointed division superintendent at Crookston, Minn. Joseph Webber, local freight agent at Seattle, succeeds Mr. Degnan. F. D. Kelsey, division superintendent at Great Falls, Mont., succeeds G. S. Stewart at Spokane.

Arthur Hatton, whose appointment as general superintendent of car service of the Canadian Pacific, with headquarters at Montreal, Que., has already been announced in these columns, was born on April 12, 1869, at London, Eng., and was educated in the public and high schools. He began railway work in June, 1888, as agent of the Central Ontario, and remained in the service of that company until July, 1890. In June of the following year he entered the service of the Canadian Pacific as a telegraph operator, and has been in the continuous service of that road ever since. He was promoted to train despatcher in June, 1896, and became chief despatcher in September, 1901, remaining in that position until January, 1907, when he was appointed inspector of transportation. In March, 1912, he was appointed superintendent of car service for the Western Lines, with headquarters at Winnipeg, Man., which position he held at the time of his recent appointment as general superintendent of car service for the entire system, with headquarters at Montreal, Que., as above noted.

#### Traffic

J. L. Harris, live stock agent of the Chicago & Alton, has resigned to become live stock agent of the Wabash.

H. V. Dinniene, who recently was appointed acting Pacific Coast agent of the Traders' Despatch at San Francisco, Cal., has been appointed Pacific Coast agent, effective February 1.

K. B. Hannigan, commercial agent of the Southern at St. Louis, Mo., has been appointed assistant general freight agent at that place. C. F. Laure, freight soliciting agent at St. Louis, succeeds Mr. Hannigan.

E. A. Weiberg, district passenger agent of the Chicago & Alton, at Peoria, Ill., has been appointed milk traffic agent at Chicago, succeeding E. M. Linzee, who has been appointed passenger agent at St. Louis, Mo. E. H. Yarkey succeeds Mr. Weiberg.

#### Engineering and Rolling Stock

The headquarters of E. F. Needham, superintendent of the locomotive and car department of the Wabash, has been removed from Springfield, Ill., to Decatur.

G. Whiteley, master mechanic of the Alberta division of the Canadian Pacific, at Calgary, Alta., has been appointed assistant superintendent of motive power of the Eastern Lines, with headquarters at Montreal, Que., and C. Kyle has been appointed master mechanic of the Atlantic division, with headquarters at St. John, N. B.

E. J. Bryant, general foreman of the International & Great Northern at Houston, Tex., has been appointed master mechanic at Mart, Tex., succeeding W. G. Hall, who has been appointed general foreman at Palestine, Tex., in place of S. T. Armstrong, who has been appointed master mechanic at that point to succeed T. Windle, resigned. P. Roquemore has been appointed mechanical engineer, a newly created position.

John J. Reid, master mechanic of the Pennsylvania division of the Delaware & Hudson at Carbondale, Pa., has been appointed master mechanic of the Susquehanna division, with headquarters at Oneonta, N. Y., succeeding William Malthaner, who has entered the service of another company, and George S. Graham has been appointed master mechanic of the Pennsylvania division, with headquarters at Carbondale, succeeding Mr. Reid.

#### Special

D. J. Corkery, real estate and tax agent of the Chicago & Alton, has resigned to become connected with the tax department of the Chicago, Burlington & Quincy at Chicago.

#### OBITUARY

James M. Warner, general manager of the Chicago & Western Indiana, died at his home in Chicago on February 8.

S. E. Flanagan, superintendent of the New Orleans & Northeastern at New Orleans, La., died at that place on February 6, at the age of 51.

Chester W. Witters, vice-president and attorney of the Central Vermont at St. Albans, Vt., died on February 9, at his home in St. Albans, at the age of 79.

Charles N. Lee, who formerly was connected with the Chicago, Burlington & Quincy for 45 years, and for 20 years was superintendent at Hannibal, Mo., died on January 30, at Kansas City, Mo., aged 83 years.

Peter J. Nichols, formerly from June, 1891, to July, 1898, general superintendent of the Nebraska division of the Union Pacific, and subsequently superintendent of the Denver Union Depot Company, died recently at the home of his daughter in Indianapolis, Ind., aged 85 years.

Norman B. Ream, one of the most prominent capitalists in New York City, died there on February 9, at the age of 70. Mr. Ream was a director of the Baltimore & Ohio, the Seaboard Air Line, the Pere Marquette and the Pullman Company, also a director or trustee of many industrial and financial concerns.

James C. Fargo, who was president of the American Express Company from 1881 until June, 1914, died on February 8, at his home in New York at the age of 86. He was born at Pompey, N. Y., and when he was 15 years old entered the employ of Wells & Company, at Buffalo, N. Y. He afterwards went to Detroit and Chicago in the service of the same company, and later became agent and Chicago manager for the firm's successor, the American Express Company. In 1866 he was appointed general superintendent and manager at New York, and in 1881, was elected president of the same company. Mr. Fargo resigned as president of the American Express Company on June 16, 1914, after a service of 70 years spent in the express business. He had been president also of the Westcott Express Company, the National Express Company, Merchants' Despatch Transportation Company and a director of the Chicago & North Western Railway. He is survived by two sons, William C. Fargo, who is secretary, and James F. Fargo, treasurer of the American and of the National express companies. An appreciation of Mr. Fargo, which was issued by the American Express Company, at the time of his retirement from the presidency of that company, contained the following: "Mr. Fargo's connection with the company has been exceptional for the length of service, in an absolute and unceasing devotion to its interests and affairs, and has been marked by a high degree of ability in the management of the company's complex and extensive business."



## Equipment and Supplies

### LOCOMOTIVE BUILDING

THE FRENCH GOVERNMENT has ordered 100 locomotives from the Baldwin Locomotive Works.

THE EUREKA NEVADA has ordered one Prairie type locomotive from the Porter Locomotive Works.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS, which some time ago ordered 10 switching locomotives from the American Locomotive Company, has recently increased that order to 13.

THE SERBIAN GOVERNMENT has ordered 10 Mallet type locomotives from the American Locomotive Company, in addition to 7 locomotives reported as ordered in the *Railway Age Gazette* of January 22.

### CAR BUILDING

THE BOSTON & MAINE is in the market for 6 postal cars.

THE UNITED FRUIT COMPANY is in the market for from 30 to 35 freight cars.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 5 postal cars from the American Car & Foundry Company.

THE COLORADO & SOUTHERN is reported to be inquiring for prices on 2,000 center sills. This item has not been confirmed.

THE ATCHISON, TOPEKA & SANTA FE has ordered 200 80,000-gal. capacity tank cars from the Pressed Steel Car Company. This order is in addition to two orders for 100 cars each placed last November and December.

THE RICHMOND, FREDERICKSBURG & POTOMAC, reported in an unconfirmed item in the *Railway Age Gazette* of last week as preparing specifications on 6 passenger cars, is actually in the market for 6 all-steel passenger coaches.

THE PENNSYLVANIA RAILROAD has given its Altoona shops authority to proceed with the construction of 48 B-70 all-steel baggage cars, 10 B-60 all-steel baggage cars and 10 MBM all-steel baggage and mail cars.

### IRON AND STEEL

THE BOSTON & MAINE has ordered 15,000 tons of steel rails from the Lackawanna Steel Company.

THE BALTIMORE & OHIO has ordered 7,000 tons of steel rails from the Carnegie Steel Company, and 5,000 tons from the Illinois Steel Company, of a total order of 25,500 tons.

GERMANY'S RAILWAY SYSTEM.—In the current issue of the Great Eastern Railway Magazine there is an article which shows what an extraordinary advantage Germany possesses over other European countries in the matter of railways. They are of course, essentially strategic in character and were originally laid down, not as ours were for the convenience of commerce, but for military use. In comparing Belgium, France, Russia, Germany and Austria-Hungary, it is seen that Germany has 6 miles of territory for every railway mile, whereas in Russia there is only one railway mile to 234 square miles of territory. But it is in their distribution even more than in their quantity that Germany possesses an advantage. Main lines run from the eastern to the western frontier almost direct, especially in the north. A cordon of lines runs along the French and Belgian frontiers and the facilities up and down the Polish frontier are nearly as great. Most likely a preponderating reason for the seizure of Luxemburg was that it gave a straight good line from Verviers to Metz, with connections on the Rhine.—*Railway Gazette*.

## Supply Trade News

The Daniels Safety Device Company has moved its offices from 327 South LaSalle street, to the Continental & Commercial National Bank building, 208 South LaSalle street, Chicago.

The O. H. Davidson Equipment Company, Denver, Colo., has been appointed representative in Colorado, Utah, Montana, Wyoming, South Dakota, New Mexico and Arizona for the Electric Controller and Manufacturing Company, Cleveland, Ohio.

William H. Kinney, formerly master mechanic of the New York, Ontario & Western at Carbondale, Pa., has entered the railroad sales department of the Dearborn Chemical Company, Chicago, and will have headquarters at the company's New York office.

The Bucyrus Company, South Milwaukee, Wis., the Western Wheeled Scraper Company, Aurora, Ill., and the General Equipment Company, New York, have recently opened a new office at Room 715, Commercial Trust building, Philadelphia, Pa. The office is in charge of E. G. Lewis.

B. F. Affleck, general sales agent, has been elected president of the Universal Portland Cement Company, owned by the United States Steel Corporation, to succeed Edward M. Hagar, who

has resigned to assume the presidency of a new company which he is forming to acquire a chain of Portland cement plants. Mr. Affleck entered the service of the Illinois Steel Company in 1896 and, from 1901 to 1903, represented the cement department of the company in the St. Louis territory. When the Universal Portland Cement Company was incorporated in 1906 to take over the cement business of the Illinois Steel Company, he became general sales agent. The company now has plants at Chicago and Pittsburgh with one under Mr. Affleck is also vice-construction at Duluth.



B. F. Affleck

president of the Cement Products Exhibition Company, under whose management the annual cement shows have been held in Chicago. The eighth show opened in the Coliseum on February 10. He has been active in promoting the use of concrete as a paving material.

F. A. Molitor, consulting engineer, 35 Nassau street, New York, has been retained by the receiver of the Brazil Railway Company to make an examination of the physical and operating conditions of the lines owned and leased by that company. He will be absent from this country for four or five months.

The Industrial Works, Bay City, Mich., has added to its line of locomotive and wrecking cranes a small locomotive bucket crane operated by a gasoline engine which is especially adapted for light or intermittent work, such as handling coal, ashes, etc., or for services in places where the use of steam is objectionable.

Due to the existence of a battery jar marketed under the name "Titan," and the fact that any battery using these jars might appear as a Titan battery, the Titan Storage Battery Company, Newark, N. J., has changed its name to the General Lead Batteries Company. No change whatever in ownership, officers or policy is involved. The change is made merely to avoid confusion.

H. H. Symmes, of H. H. Symmes & Brothers, Montreal, Que., has returned to Indianapolis, Ind., and will handle the company's business in the United States. Mr. Symmes has two specialties, the Symmes grease resisting mastic rock floor and the Symmes method of applying waterproofing on bridges and subways.

The Roberts & Schaefer Company, Chicago, has been awarded a contract by the Cottonwood Coal Company, Great Falls, Mont., for the construction of a complete fireproof coal tippie and coal washing plant at the company's mine at Lehigh, Mont. The tippie will have a daily capacity of 3,500 tons and the washery, 2,000 tons. The approximate cost is \$120,000. The Cottonwood Coal Company is a subsidiary of the Great Northern Railroad.

W. S. Ottinger, district sales manager of the Cambria Steel Company, has been appointed assistant general manager of sales, effective, March 1, to succeed C. B. McElhany, who, as previously announced, has been appointed general manager of sales to succeed J. L. Replogle, resigned. Mr. Ottinger will be succeeded as district sales manager by F. J. Krouse. Albert S. Johnson will become assistant district sales manager, succeeding Mr. Krouse.

James F. McElroy, president of the Consolidated Car Heating Company, Albany, N. Y., died at Laconia, N. H., on February 10. Mr. McElroy was prominent as an inventor and business man, and was identified with several of Albany's banking and mercantile institutions. He was born in Greenfield, Ohio, November 25, 1852, and was graduated from Dartmouth College in 1876. For four years following Mr. McElroy was the principal teacher of the Indianapolis Institution for the Blind, and then for seven years was superintendent of the Michigan Institution for the Blind. In 1887 he organized the McElroy Car Heating Company, operating its own patents. Two years later it was combined with the Sewall Car Heating Company. Mr. McElroy was a member of several of the city clubs.

The patent suit brought against the B. F. Sturtevant Co., Boston, Mass., by the Sirocco Engineering Company, Detroit, Mich., which has been in the courts for the past six years, has just been decided by the United States Circuit Court of Appeals for the Second Circuit, in favor of the Sturtevant Company. It was claimed that the Sturtevant Multivane Fan infringed the Sirocco Company's patents, and in the lower court this claim was sustained. The Court of Appeals, however, reversed the former decision and held that there was no infringement. The Court of Appeals further decided that the Sirocco patents in suit were void in view of the development of the fan building art prior to the alleged inventions upon which these patents were based. As there are probably more Multivane fans in use than any other make, the monetary consideration at stake was large.

Negotiations are reported as practically completed for the sale by the Westinghouse Electric & Manufacturing Company of its French company, the Societe Anonyme Westinghouse, and the latter's subsidiary, the Societa Italiana Westinghouse, to the British Westinghouse Electric & Manufacturing Company, Ltd., the controlling interest in which is owned by the American company. As the Russian plant is in process of liquidation, it is not involved. No change is made at this time in the status of the Austrian company, but it is expected that later it may also be sold to the British company. The entire transaction is not a war measure nor forced by the war, but strictly a matter of business policy. Heretofore all the Westinghouse companies in Europe have competed for orders instead of working co-ordinately. In consequence of the transfer of control to the British company, this competition for orders will be abolished.

Yesterday, on the occasion of Thomas A. Edison's 68th birthday, all the executives and members of the factory and sales forces of the Edison companies and their distributors followed the custom which has been established for several years of wearing in honor of the day a small badge, bearing a picture of Mr. Edison. Mr. Edison's birthday this year is of more than usual interest, because it comes while his entire force is feeling proud of the rapid recovery after the great fire on December 9. "Tips," the "Chronicle of Edison Events," so-called, states the men's attitude well in the following words: "The real, perennial secret of Edison's strong mind and body, is his 'tomorrow' atti-

tude. With him today is tomorrow in the embryo, tradition is twaddle and the past is only useful in discovering ways for the future. So when that pesky blaze caused us all some inconvenience there is no doubt about it that Edison found in the reconstruction something that was new, big, creative and worth while to engage his inexhaustible energies. All of us should get this lesson from Edison on his birthday and appreciate that a whole life's training of tomorrow work prepared him for this fire check and the job of rehabilitating his industries—a job of magnitude that would turn the average man into a phonographic pessimist and his business over to the junkman."

#### The Chicago Pneumatic Tool Company

The annual report of the Chicago Pneumatic Tool Company for the fiscal year ended December 31, 1914, is one of the first reports of the railway supply companies so far issued for the year and one of the first, therefore, to show the effect of the war on the supply trade field. In the year the company had net profits of but \$655,104 as compared with \$1,171,245 in 1913. It charged to depreciation but \$195,122 as compared with \$300,549 in 1913 and it wrote off for developing and perfecting new tools \$15,153. Bond interest for the year totaled \$116,175, and there was set aside as an installment for the sinking fund \$50,000. The balance carried to the surplus account was thus \$278,655. Deductions from surplus account were made, however, of \$104,449, representing profits of foreign subsidiary companies retained by them for working capital, and dividends were paid, aggregating 4 per cent. for the year, of \$257,952, the same as for each of the last four years. The total surplus on December 31, 1914, was \$2,165,357 as against \$2,249,104 on December 31, 1913.

On December 31, 1913, the company had real estate, buildings, plant, machinery, patents and good will, less reserves, valued at \$7,075,932. It also held capital stock of other companies and other investments of \$1,191,370. Its current assets were cash of \$96,818; accounts and bills receivable, including undivided profits of subsidiary companies, less reserves, of \$1,186,535, and its inventories of material, finished work and work in process totaled \$2,009,252, the increase being said to be due to the efforts to retain the company's organization as far as possible by furnishing work to its employees and to provide a stock sufficiently large to take care of any sudden increase in the demand for products. The company's totaled capital stock outstanding is now \$6,485,800 and there are also first mortgage bonds to the value of \$2,500,000. The current liabilities on December 31, 1914, however, were as follows: interest accrued on bonds payable January 1, 1915, and dividend payable: January 25, 1915, \$123,738; bills payable, \$287,017, and accounts and vouchers payable, \$178,143.

### TRADE PUBLICATIONS

**AIR COMPRESSORS.**—The Chicago Pneumatic Tool Company in bulletin No. 34-K treats of class N-SO and N-SG fuel oil and gas driven compressors and their application to the unit system of air power plants. In common with all the bulletins issued by the company the booklet is well illustrated and treats of the product with which it deals in full detail.

**VALVES.**—A 40-page catalog recently issued by the Homestead Valve Manufacturing Company, Homestead, Pa., deals with the different types of valves which this company manufactures. Illustrations and the principal dimensions of the different types are given and a cross-section showing the construction of the Homestead straightway valve is included on page 7, with detailed descriptive matter.

**PAINT.**—The first number of a publication to be known as The Scientist has been received from the Goheen Manufacturing Company, Canton, Ohio. It is intended to devote the space in this booklet to the advancement of the iron, steel and galvanized iron preservatives, as well as the water-proofing compound and damp-proofing paint of which the Goheen Manufacturing Company is the maker.

**OIL TESTING SET.**—The General Electric Company has just issued bulletin No. 49,901, describing an oil testing set, by means of which the dielectric strength of oil can be easily determined. The proper use of this set insures the successful operation of high tension oil insulated apparatus. The set consists of a 30,000-volt testing transformer with an induction regulator for voltage control and an oil spark gap, all of which are assembled as a unit.



## Railway Construction

**ARIZONA ROADS.**—A contract has been let for building a railroad, it is said, from Willcox, Ariz., on the Southern Pacific, east to Dos Cabeza, 14 miles. The line is to be built by the Mascot Copper Company, to provide an outlet from its mines. T. N. McCauley, San Francisco, Cal., is president.

**BUCKHANNON & NORTHERN.**—See Monongahela Railroad.

**CANADIAN NORTHERN.**—This company has been authorized to open for traffic the line from the junction with the Balke River sub-division north of Camrose, Alta., to a junction with the Canadian Northern Western near Strathcona, 46 miles.

**CANADIAN NORTHERN ONTARIO.**—Surveys are about finished for a line to be built from Toronto, Ont., to Niagara Falls, 79.13 miles.

**CANADIAN NORTHERN, QUEBEC.**—The Canadian parliament is being asked for an extension of time in which to build from Rawdon, Que., northerly to the National Transcontinental Railway, with a branch to Joliette, also to build from St. Jerome to St. Eustache.

Application has been made to the Canadian parliament for an extension of time in which to complete the James Bay & Eastern, from Lake Abitibi, easterly across the province of Quebec, passing along the south end of Lake St. John to the mouth of the Saguenay river. About 30 miles of the line from Roberval, westerly, is under contract to J. P. Mullarkey, Montreal.

**CAROLINA & YADKIN RIVER.**—An officer writes regarding the report that surveys for an extension are to be started soon from a point near the southern end of the existing line at Denton, N. C., southeast to Troy, about 25 miles, that the company is merely making preliminary surveys and no construction work will be started until conditions are better. The company now operates a line between High Point, N. C., and High Rock, 35.6 miles. (February 5, p. 251.)

**DAUPHIN ISLAND UTILITIES COMPANY.**—See Tidewater Securities Corporation.

**EASTERN ONTARIO ELECTRIC.**—The Ontario legislature has been asked to extend the time in which to build lines from Cornwall, Ont., to Toronto, and from Ottawa to Brockville, also a number of branch lines. The company was incorporated in 1909, with headquarters at Cobourg, Ont., and in 1913 was granted an extension of time in which to build the lines. G. E. Smith, L. R. Murdock, C. S. Foss and G. T. Taylor, Boston, Mass., are interested.

**INTERNATIONAL RAILWAY COMPANY (Electric).**—This company has been given permission by the New York Public Service Commission, Second district, to build a high speed electric line between Buffalo, N. Y., and Niagara Falls. (December 25, p. 1207.)

**JAMES BAY & EASTERN.**—See Canadian Northern, Quebec.

**MARION & EASTERN.**—See Southern Illinois & St. Louis.

**MIDDLETOWN, MONTICELLO & CALICOON.**—Plans are being made to build a line from Middletown, N. Y., northwest via Monticello, to Calicoon, about 40 miles. Funds have already been secured to make the surveys. The promoters expect to use gasoline motor cars for operating the line. Blake A. Mapledoram is engineer, Monticello, N. Y.

**MONONGAHELA RAILROAD.**—According to press reports the Buckhannon & Northern is making surveys for an extension from Fairmont, W. Va., southwest to Clarksburg, about 25 miles. The B. & N. finished track laying in 1912 from a point at the Pennsylvania-West Virginia state line, where a connection was made with an extension of the Monongahela Railroad south to B. & N. Junction, 30 miles, from which point trackage rights were to be secured over the B. & O. to Fairmont.

**NORFOLK & WESTERN.**—An officer writes regarding the construction of a low grade line between Pamplin, Va., and Burke-

ville that some surveys have been made in the vicinity of Farmville, but the company has not yet decided when to begin the work.

**SOUTHERN CENTRAL PACIFIC.**—This company has applied to the Canadian parliament for an extension of time in which to build from Vancouver, B. C., via Kootenay pass and the Old Man river to Hudson Bay, at a point not less than 100 miles north of Fort Churchill, with branch lines from the Blindman river, Sask., via Dunvegan to the Pacific coast at Gardner's canal, and from the Elk River, B. C., to the international boundary at Milk river. The following were named provisional directors in an amending act of 1913: G. F. McDonnell, A. E. Honeywell, W. N. Graham, J. C. Dingman, K. P. Young, Ottawa, Ont.

**SOUTHERN ILLINOIS & ST. LOUIS (Electric).**—This company plans to build from St. Louis, Mo., southeast via East St. Louis, Ill., Belleville, Duquoin, Herrin, Johnston City and Pittsburg to Harrisburg, about 140 miles, where a connection is to be made with the El Dorado-Carriers Mills line of the Southern Illinois Railway & Power Company. The plans also call for a 13-mile branch from Johnston City north via West Frankford to Benton, and for a cut-off from a point east to Johnston City south to a point east of Marion, where connection is to be made with the Marion & Eastern operating a 7-mile steam road between Pittsburg and Marion, which is to be electrified. The company expects to complete work on the main line from Pittsburg west via Johnston City to Herrin during 1915. Also on the branch north from Johnston City and on the cut-off. The section from Herrin northwest to Duquoin, 20 miles, is expected to be finished during 1916; the 72-mile section to Belleville will be finished in 1917, and the remainder of the line in 1918. The steel bridges on the line include 30 spans, all to be deck girders, varying in length from 20 ft. to 40 ft. each, and the plans include putting up car shops in Johnston City. W. H. Schott, president, 111 West Monroe street, Chicago; Frank Payne, chief engineer, Johnston City, Ill. (March 6, 1914, p. 493.)

**SOUTHERN NEW ENGLAND.**—This company has petitioned the state legislature of Rhode Island for an extension of time, to July, 1917, in which to complete work on the section in Rhode Island. This company was organized by the Grand Trunk, and started work in 1912 on the line from Palmer, Mass., southeast via Blackstone and Woonsocket, R. I., to Providence, about 75 miles. Under the terms of the original charter the section in Rhode Island was to be finished by July, 1915.

**TAVARES & GULF.**—This road has been extended from Winter Garden, Fla., to Ocoee, 2.4 miles, and the company now operates a main line from Tavares south to Waits Junction, thence east via Winter Garden to Ocoee, 31 miles. A branch is also in operation from Waits Junction west to Clermont, 6 miles.

**TIDEWATER SECURITIES CORPORATION.**—An officer writes that under the name of the Dauphin Island Utilities Company a line is to be built from the terminus of the Mobile & Ohio tracks, near Alabama Port, Ala., to Cedar Point, 3.66 miles, which is later to be extended to Dauphin Island, a total of about 9 miles, and when completed the new line will probably be operated by the Mobile & Ohio. In addition to the use of steam as the motive power for freight service the company plans to use gas electric motor cars for passenger service. The right of way has recently been secured and contract will probably be let in the near future either to the Dauphin Island Contracting Company or to the construction department of the M. & O. for the section from Alabama Port to Cedar Point. The line is being built to carry general freight and passengers to Cedar Point, and after it is extended to Dauphin Island in addition will carry coal, also general freights for export and import, it being the intention to make Dauphin Island a port and coaling station. J. M. Dewberry, president, and T. W. Nicol, chief engineer, Bank of Mobile building, Mobile, Ala.

**TORONTO EASTERN (Electric).**—Application has been made to the Canadian parliament by this company for an extension of time in which to complete the line authorized to be built from Toronto, Ont., easterly to Cobourg, with branches as follows: From Cobourg or Port Hope northerly to Peterborough; from Scarborough to Markham, Stouffville or Uxbridge; from Oshawa northerly via Lake Scugog to Lindsay; and from Oshawa south-

erly to Lake Ontario. Ewan MacKenzie, Toronto, has a contract for some of the work, and track has been laid on about 15 miles. E. W. Oliver, chief engineer, Toronto. (November 27, p. 1030.)

**VANCOUVER RAILWAY & OCEAN TERMINAL.**—See Vancouver Terminal.

**VANCOUVER TERMINAL.**—This company is asking the Canadian parliament for incorporation to build a railway and terminal works, tunnels and transfer and connecting tracks and other railways in Vancouver, B. C., New Westminster, B. C., and at the mouth of the Fraser river, B. C. The Canadian parliament was asked to incorporate a similar company in 1914, under the name of the Vancouver Railway & Ocean Terminal Company, but the bill was withdrawn last April. J. B. Noble, Vancouver, B. C., is solicitor for applicants.

## RAILWAY STRUCTURES

**CAMDEN, N. J.**—The Philadelphia & Camden Bridge & Terminal Company has been incorporated in New Jersey with \$125,000 capital, to build a combined railroad and highway bridge over the Delaware river between Philadelphia, Pa., and Camden. J. Disbrow Baker, J. T. Murray and F. Stanley Saurman are incorporators.

**GALVESTON, TEX.**—The contract for the construction of the superstructure of the grain elevator of the Southern Pacific Terminal Company has been let to James Stewart & Co. (January 15, p. 116.)

**KIOWA, KAN.**—The Atchison, Topeka & Santa Fe is preparing plans for the construction of yards and the building of a new depot.

**LOS ANGELES, CAL.**—The San Pedro, Los Angeles & Salt Lake has plans made for putting up a new passenger station on Seventh street, in Los Angeles. The building is to be 110 ft. x 162 ft.; it will be two stories high of reinforced concrete construction, finished in glazed terra cotta with tile roof. There will be a lobby 16 ft. x 40 ft., and the main waiting room will be 40 ft. x 70 ft. There will also be a ladies' waiting room, and a smoking room for men. The ticket office will open off the main waiting room. The plans also provide for a lunch room, a baggage room, a news and parcel room and an information desk. In the rear of the station it is planned to construct a concourse to be covered with glass leading directly to umbrella sheds covering all the passenger tracks. As soon as the city officers of Los Angeles grant the necessary franchises, bids will be asked for carrying out the work. The estimated cost of the station is between \$250,000 and \$300,000.

**MANGUM, OKLA.**—The Chicago, Rock Island & Pacific is contemplating the construction of a two-stall engine house at this point.

**NEW YORK.**—The Long Island will start work soon on the elimination of grade crossings through the Forest Hills and Richmond Hill sections of the borough of Queens. This is the last of the important grade elimination projects of the Long Island within the city limits.

**THE LEHIGH VALLEY'S REPORTS.**—Once a railroad president's chief duties were to build and operate a railroad, distribute dividends and accommodate the public. Now his heaviest job is to answer questions. That veteran graybeard, Eben B. Thomas, president of the Lehigh Valley, says that last year he had to make 25,000 reports, involving answers to a few million queries propounded by various politically created and politically manned commissions. And of those 25,000 reports, it is likely that 24,990 covered useless information. But the silliness of the questions asked and the futility of the information could not abate the zeal of these commissions for more carloads of reports. To please Senator La Follette the people are saddled with that valuation question which is to cost a tidy \$50,000,000. No other one question is quite so expensive as that, but they all cost some money, and nearly all of them as unpractical and useless as would be a scheme to propagate fish in the Sahara desert.—*Philadelphia Public Ledger.*

## Railway Financial News

**CINCINNATI, HAMILTON & DAYTON.**—The following protective committee has been formed for the first mortgage 5 per cent bonds of the Cincinnati, Dayton & Ironton: Alvin W. Kreech, president of the Equitable Trust Company of New York; Frederick H. Shipman, treasurer of the New York Life Insurance Company, and L. E. Zacher, treasurer of the Travelers Insurance Company of Hartford, Conn.

**CHICAGO, ROCK ISLAND & PACIFIC.**—The annual meeting of the stockholders for the election of directors which had been adjourned to March 15 has been further adjourned to April 12.

**DENVER & RIO GRANDE.**—Plans are being discussed, it is understood, for modifying in some way the requirements of the Denver & Rio Grande's guarantee of the \$50,000,000 Western Pacific first mortgage 5 per cent bonds. One of the plans discussed is to scale down the \$50,000,000 Western Pacific first mortgage bonds to \$25,000,000 and to give bondholders in lieu of the \$25,000,000 face value thus taken from them \$25,000,000 new adjustment income bonds which will be an obligation of both the Denver & Rio Grande and Western Pacific.

**ERIE.**—The \$7,000,000 Erie & Jersey 6 per cent bonds, which issue, as was mentioned in these columns last week, was approved by the New York Public Service Commission, have been sold by J. P. Morgan & Co., the purchasers from the railroad, to the Guaranty Trust Company, New York, which company has formed a syndicate for the sale of the bonds, and is offering them to the public at 104½, yielding 5.70 per cent on the investment.

**MICHIGAN CENTRAL.**—J. P. Morgan & Co. have bought \$4,000,000 first mortgage 3½ per cent bonds subject to the approval of the Michigan Public Service Commission.

**MISSOURI PACIFIC.**—The Wall Street Journal says: Four St. Louis men are slated to go on the Missouri Pacific and the St. Louis, Iron Mountain & Southern board of directors when the contemplated program is carried out at the annual meeting on March 9, next. They are Frank O. Watts, president of the Third National Bank of St. Louis; William H. Lee, president of the Merchants Laclede National Bank; Edward H. Faust of the Anheuser-Busch Brewing Company, and Festus J. Wade, president of the Mercantile Trust Company.

The New York members of the board, it is stated, will be Alexander J. Hemphill, chairman of the board of the Guaranty Trust Company; Nicholas F. Brady, president of the New York Edison Company; Cornelius Vanderbilt, Newcomb Carleton, president of the Western Union Telegraph Company, and Robert Winsor, of Kidder, Peabody & Company. Seven of these men will serve on the Missouri Pacific board and all on the Iron Mountain board.

Present Missouri Pacific directors who will be retained on the board are Edgar L. Marston, E. D. Adams, Edwin G. Merrill, R. Lancaster Williams, B. F. Bush and Finley J. Shepard. Four of these are also directors of the St. Louis, Iron Mountain & Southern.

**NEW YORK CENTRAL RAILROAD.**—See editorial comments on the new bond issue.

**PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.**—Kuhn, Loeb & Co. and Speyer & Co., both of New York, have bought \$3,000,000 consolidated mortgage 4½ per cent bonds of the Pittsburgh, Cincinnati, Chicago & St. Louis, guaranteed by the Pennsylvania Company.

**WESTERN PACIFIC.**—See Denver & Rio Grande.

**RAILWAY CONSTRUCTION IN MONGOLIA.**—An inter-departmental committee has been nominated by the Russian government to consider the construction of railways in Mongolia, either at government or private expense. The first line to be considered is one to connect Kiachta and Ugra.